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science and engineering doctorates: 1960-89

surveys of science resources series
national science foundation

detailed statistical tables

NSF 90-320

DEC 03 1990

COMPLETED

science and engineering doctorates: 1960-89

principal author: susan t. hill

surveys of science resources series
national science foundation

detailed statistical tables

NSF 90-320

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Contributors

The Survey of Earned Doctorates forms were distributed and collected by the Graduate Deans. The data were processed/tabulated by the National Research Council. In the Division of Science Resources Studies, NSF, the report was prepared by Susan T. Hill of the Science and Engineering Education Studies Group. Supervision was provided by Mary J. Golladay, Study Director, and Daniel Melnick, Director, provided guidance. Others who contributed to the production of the report are Millicent V. Gough, editor; Elizabeth J. Michael, editorial assistant; and Michelle R. Edwards, word processor.

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general notes

This report is the eighth in a series based on data from the Survey of Earned Doctorates (SED). It presents data on science and engineering (S/E) doctoral awards for the 30 years from 1960 through 1989. Selected findings from the annual survey are also published in the *Science Resources Studies Highlights* series and in Early Release tables. In addition, data are available on diskette for use on a personal computer.

source of the data

The source of the data is the SED, which has been conducted since 1958 by the National Academy of Sciences/National Research Council (NAS/NRC), under contract to the National Science Foundation (NSF) and four other Federal agencies. Information from this survey becomes part of the Doctorate Records File, which includes about 950,000 records for doctorates awarded since 1920. (The File contains only name, gender, field, and doctoral institution for recipients from 1920 to 1957.)

SED forms are distributed to all regionally-accredited universities in the United States and its territories (e.g., Puerto Rico) that confer research doctorates. In 1989, there were 363 such institutions. The SED forms are collected, with cooperation from the Graduate Deans, directly from the individuals who have completed requirements for a research doctorate. Survey data are requested from those who received research doctorates such as the Ph.D., Ed.D., or D.Sc., but not from those who received nonresearch doctorates and first-professional degrees such as the J.D. or M.D. The data for a given year include the research doctorates awarded in the 12-month period ending on June 30 of that year.

Research-doctorate recipients are requested to provide educational history and demographic information. Approximately 92 percent or more of the annual cohorts of recipients responded to the questionnaire. For nonrespondents, partial data (on degree, field, and gender of recipient) taken from public sources such as commencement programs, are added to the file. There are no estimations made for other missing data. The Technical Notes describe the extent and possible effect of missing data for doctorates.

Estimates for recent years are subject to very slight revision. If any nonrespondents send in a completed survey form after the year in which they graduated, or if a university corrects its list of conferrals, adjustments are made to counts for that year. Such changes represent less than 1 percent of the data.

fields of study

The SED taxonomy of degree fields is based on the classification used in the Federal Government for data collection. This taxonomy, "A Classification of Instructional Programs," was developed by the National Center for Education Statistics (NCES), U.S. Department of Education. The field taxonomy has been revised periodically to reflect changes in degree programs. Changes in the S/E field taxonomy over time are shown in the notes to table 1.

This report presents data on S/E research doctorates according to groupings of fields of study as related to NSF functions. (For example, the health specialties are not included.) Broad S/E fields included in this report are the following: engineering, physical sciences, earth/atmospheric/marine sciences, mathematics, computer/information sciences, biological sciences, agricultural sciences, social sciences, and psychology. The specialties grouped under each of these broad fields are shown in table 1.

This NSF grouping may differ from the groupings used by other organizations to report SED results. For example, NRC publishes data on the physical sciences that include the fields of physical sciences, earth/atmospheric/marine, mathematics, and computer/information sciences in one category.

Information on the limitations of the survey data is presented in the Technical Notes. Requests for additional information concerning the survey findings or methodology may be addressed as follows:

Susan T. Hill
Division of Science Resources Studies
National Science Foundation, Rm. L-611
1800 G Street, N.W.
Washington, D.C. 20550
(202) 634-4787

section a

technical notes

explanation of terms

Most data presented in the detailed statistical tables, section c, are taken directly from the responses to questions on the survey form, a facsimile of which is included as section b. A few items are calculated, however, and therefore need further explanation:

Median age (table 4)

Each doctoral recipient's age is calculated by subtracting the year of birth from the year in which the doctorate was earned. The median age for each group is the age at which as many older persons as younger persons received the degree.

Median lapsed time between receipt of baccalaureate and doctorate (table 5)

Total time lapse is calculated for each doctorate by subtracting the year the baccalaureate was awarded from the year the doctorate was awarded. This period would include times during which the student was registered and not registered. Median lapsed time from baccalaureate to doctorate for a group is the middle point of their lapsed time, i.e., one-half took this number of years or less to earn a doctorate and one-half took longer.

Field-switching between baccalaureate and doctorate (table 7)

Changing the major field of study (as shown in the table) between the dates on which the baccalaureate and doctoral degrees were awarded.

Baccalaureate-origin institution (table 11)

The institution from which the doctoral recipient's baccalaureate was earned.

Definite postgraduation plans (used in tables 13-15)

At the time the doctoral recipients earn their degree, they provide on the SED form the status of their current postgraduate plans. Data from those who indicate that they have definite commitments are used for the tabulations in tables 13-15. Definite commitments for employment or postdoctoral study include having a signed contract or continuing in predoctoral employment. About two-thirds of doctoral recipients have definite commitments or postgraduation plans at the time they earn their degree.

Since the survey is filled out about the time the doctorate is received, these plans are subject to change. A comparison with data collected from the longitudinal Survey of Doctoral Recipients has shown these data to be a reasonable predictor of employment status a year later.[1]

evaluation of the data

Documentation of the data presented in this report should allow the user to understand the strengths and limitations of the data. The first section compares data on doctorates from the SED with data from an external source, a national survey of institutions on all degree awards. The second section provides information on possible sources of error for the SED.

A. Comparison of data with an external source

It is useful to compare data from the SED with data from other sources to evaluate (1) general survey coverage and (2) the classification of S/E degrees. The SED collects data from individuals earning research doctorates. Another national survey collects data from institutions on all degree recipients, at each level from associate to doctorate, by field and gender (annually) and by race/ethnicity (biennially), at an aggregate level. (It does not collect data from individuals on their characteristics.) NCES, U.S. Department of Education, collects these data using the Completions Survey (CS), formerly called Earned Degrees (ED) of the Higher Education General Information Surveys (HEGIS). For brevity, the source of this data series shall be referred to simply as the Completions Survey (CS).

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[1] *Summary Report 1982* (Washington, D.C., National Research Council, 1983), pp. 22-23.

evaluation of general survey coverage

Data on the total number of doctorates from the NCES CS is slightly higher than that from the SED (table A). The difference in numbers is attributable primarily to the fact that the SED is limited to research doctorates; the NCES survey includes data on nonresearch doctorates as well.

The nonresearch doctorates that are excluded from the SED are primarily in the fields of theology and education (table B). These two fields accounted for about 85 percent, or 1,434, of the difference (1,685) in the total number of doctorates reported in these surveys in 1987.

This difference in coverage between the two surveys does not affect the topic of this report on S/E doctorates to any significant degree.

Another source of difference between the two surveys lies in the treatment of nonresponse for field and gender. The SED utilizes information from commencement programs and the graduate schools to obtain data on field of study and gender of research doctorates who did not respond. The CS imputes for nonresponse based on an institution's previous annual report, if available. It is not possible to tell the number of doctorates imputed by NCES by field and gender.

Table A. Comparison of general survey coverage of doctorate data from the SED and the CS

Selected years	Number of research doctorates reported in SED	Number of total doctorates reported in CS	Ratio of SED to CS
1960	9,733	9,829	99.0%
1976	32,946	34,076	96.7
1987 1/	32,356	34,041	95.1

1/ This is the most recent year for which degree data have been published by NCES.
NOTE: SED is the Survey of Earned Doctorates; CS is the Completions Survey.
SOURCES: National Science Foundation and National Center for Education Statistics

Table B. Comparison of data reported in the SED and CS for doctorates in the fields of theology and education: 1987

Selected fields	Research doctorates reported in SED	Total doctorates reported in CS	Difference
Theology	254	1,230	976
Education	6,445	6,903	458

NOTE: SED is the Survey of Earned Doctorates; CS is the Completions Survey.
SOURCES: National Science Foundation and National Center for Education Statistics

classification of s/e doctorates

In the SED, the respondents are individuals who indicate their field of specialization. In the CSs, the field of degree is provided by the university and therefore reflects institutional organization, such as department names, to some extent.

There are higher numbers of degrees classified as science/engineering in the Survey of Earned Doctorates than in the CSs (table C).

The differences in the number of doctorates reported in 1987 by S/E fields are shown in table D. They lie primarily in the fields of earth/atmospheric/marine sciences and in the biological sciences.

The reasons for the major differences in the number of doctorates classified in biological science are found primarily in two specialties: (1) In the SED, there were 659 doctorates who reported biochemistry/biophysics as their specialty, compared with 461 reported in the CS. (2) In the SED, the field of immunology was chosen by 135 doctorates, compared with 10 reported in the CS. In the CS survey, immunology is grouped under

Table C. Comparison of data on science/engineering (S/E) doctoral recipients from the SED and the CS: selected years

Selected years	S/E doctoral recipients SED	CS	Ratio of SED to CS
1960	6,263	6,056	1.03
1976	18,268	17,909	1.02
1987 1/	19,702	19,277	1.02

1/ This is the most recent degree data published by NCES.

NOTE: SED is the Survey of Earned Doctorates; CS is the Completions Survey.

SOURCES: National Science Foundation and National Center for Education Statistics

health science. It is likely that many of the degrees classified as health science fields in the CS survey are classified under biological science by respondents to the SED. In 1987, 800 respondents to the SED classified their field as health science; however, institutions reported 1,153 doctorates in health sciences.

The reason for the difference in the number of doctorates classified in the earth/atmospheric/marine sciences lies primarily in the difference in the taxonomies used by the two surveys. The field taxonomy used in the SED contains 20 specialties, while the taxonomy used in the NCES surveys is not as detailed, containing only 7 specialties.

This indicates that overall, the SED and the CS obtain similar data on S/E doctorates by field. There are major differences, however, when the field of study is interdisciplinary (e.g., biochemistry), a new growing field (e.g., immunology), or where the taxonomy is much more specialized in one survey than in the other (e.g., earth/atmospheric/and marine sciences).

B. Possible sources of survey error

The SED is a universe survey of all recipients of research doctorates; therefore it is not subject to sampling error. Data obtained from this survey are subject to nonsampling error, however. Nonsampling errors may result from a variety of factors, including nonresponse to the survey or to a particular item; differences in interpreting questions; respondent errors; and errors made in recording the data. It is difficult to quantify the amount of nonsampling error from all possible sources. The following provide known information concerning three sources of nonsampling error for the SED: survey nonresponse, item nonresponse, and errors made in recording the data.

survey nonresponse

The response rate to the SED is high for a voluntary survey of individuals. The response rate averages 95 percent over the period for which data are presented in this report. For nonrespondents to the survey, information on field of study, doctorate institution, gender, and baccalaureate is obtained from public sources such as commencement programs, and added to the file. Data are not imputed for the other variables in the survey.

An analysis of the sources of nonresponse indicated that it is related to institutions, not to characteristics of the doctoral recipients. Over half of the nonresponse in 1987 was accounted for by 4 percent of the institutions in

Table D. Comparison of data on science/engineering (S/E) doctorates, by major field, reported in the SED and the CS: 1987

Major S/E field	Doctorates reported in: SED	CS
S/E fields, total	19,702	19,277
Physical Science	3,212	3,216
Earth/Atmospheric/Marine	628	462
Mathematics	740	725
Computer Science	450	374
Agriculture	976	1,049
Biological Science	3,836	3,442
Social Science	2,980	2,931
Psychology	3,169	3,219
Engineering	3,711	3,859

NOTE: SED is the Survey of Earned Doctorates; CS is the Completions Survey.,

SOURCES: National Science Foundation and National Center for Education Statistics the survey. In general, these institutions employed methods for collecting the survey data that resulted in low response rates or did not have any residency requirements for their doctoral programs.

To the extent that S/E doctorates are awarded by institutions with low response rates to the SED, the effect of nonresponse could vary by field. As the basic classification variable for the tables in this report, it is important to present response rates by S/E field. As shown in table E, the response rates varied from 85 percent to 95 percent across S/E fields in 1989.

item nonresponse

Persons who respond to the survey may choose not to provide the information requested in a particular question or may inadvertently skip an item on the survey form. The public sources already cited (e.g., commencement programs) may provide additional information. The data items reported in the tables in this report are listed in table F with nonresponse rates, showing the extent of information not obtainable from any source for the population described in each of the detailed statistical tables.

As shown in table F, the highest item nonresponse rates are for questions that concern country of citizenship (for foreign citizens) and postgraduation location (for those with definite commitments); this should be taken into account when using data from the relevant tables in this report, tables 6 and 13, respectively. While table F provides an overview of the nonresponse rates for items used in this report, each table contains more detailed data on the actual nonresponse by field; exceptions are tables 4 and 5, which contain calculations of medians.

Table E. Response rates of science/engineering (S/E) doctorates to the Survey of Earned Doctorates, by major field of study: 1989

Major field of study	Response rate 1/
S/E fields, total	91.1%
Physical	92.5
Physics	91.2
Chemistry	93.2
Earth/atmospheric/marine	91.9
Mathematics	89.5
Computer	93.8
Agriculture	93.0
Biological	94.4
Social	89.9
Psychology	85.9
Engineering 2/	91.2
Chemical	95.0
Civil	94.0
Electrical	90.3
Materials	90.7
Mechanical	89.4
Non-S/E fields	91.9
Total, all fields	91.4

1/Form received with information supplied by doctorate recipient; additional information may have been secured from public sources.

2/ Includes other engineering fields not shown separately.

SOURCES: National Science Foundation and National Research Council

errors made in recording data

The SED forms are processed on a continual basis throughout the year. When the forms are received from the Graduate Schools, they are reviewed for completeness to determine whether there is enough information to be considered a response. If so, they are ready for data entry. Two methods for data entry were used during the time period covered in this report. Completed survey forms used from 1960 to 1987 were coded onto paper and then keypunched. Beginning in 1988, some survey forms were directly entered on-line into the computer; in 1989, about half of the survey forms were processed using this method.

An evaluation of the two methods of data entry was conducted in 1990 to determine the undetected error rates for recording data from the SED. The evaluation was conducted after the survey forms had gone through the computer-editing process designed to check for completeness, legitimate range values, and internal consistency.

The results of the evaluation showed that the error rate is less than one percent. Because the SED is a survey of individuals, an error in recording a data item affects only that item for that individual. The evaluation found that the error rate per item was .0037 for the paper coding/keypunch method and .0023 for the on-line data entry method. The SED is currently making a complete conversion to the on-line data entry method.

Table F. Item nonresponse rates for data reported in the detailed statistical tables: 1989

Detailed statistical table number	Data item	Nonresponse (all doctorates)	Nonresponse (subgroups of doctorates)
1, 4, 5, 8, 9, 10, 14	Gender	0.0%	
2, 3, 13, 15	Citizenship	8.6%	
3	Race/ethnicity	9.9%	
4	Birth year (used in median age at doctorate)	9.2%	
5	Year of bachelors degree (used in median time to doctorate)	9.0%	
6	Country of citizenship (for foreign only)	NA	10.4%
7	Baccalaureate field (used in field-switching)	10.9%	
8	State of doctorate-granting institution	.0%	
9,10	Doctorate-granting institution	.0%	
11	Baccalaureate-origin institution	7.0%	
12	State of high school (for those who attended in U.S.)	NA	.0%
13,15	Postgraduation location (for those with definite commitments)	NA	7.4%
14,15	Postgraduation employment (for those with definite commitments)	NA	.3%

NOTE: NA=Not applicable; table relates to a subset of all doctorates.
SOURCES: National Science Foundation and National Research Council

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section b

survey questionnaire

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Survey of Earned Doctorates Awarded in the United States, 1989-90 9

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SURVEY OF EARNED DOCTORATES AWARDED IN THE UNITED STATES, 1989–90

Form Approved
OMB No. 3145-0019
Approval Expires 6/91

Conducted under contract by The National Research Council (NRC)
in cooperation with
The Graduate Deans,
The Council of Graduate Schools,
The American Council of Learned Societies, and
The Social Science Research Council

Sponsored by:
The National Science Foundation
The National Institutes of Health
The National Endowment for the Humanities
The Department of Education
The Department of Agriculture

For further information call
NRC (202) 334-3161

To the Doctoral Candidate:

The purpose of this survey is to gather data about doctoral graduates. These data are important for the improvement of graduate education both nationally and at your institution.

The survey form is distributed with the cooperation of the Graduate Deans and is filled out by all graduates who have completed requirements for their doctoral degrees. Please complete and return this form to your Graduate Dean. On the back of this sheet is a Specialties List for classifying your field of specialization.

The confidentiality of survey data is carefully protected.

This information is solicited under the authority of the National Science Foundation Act of 1950, as amended in P.L. 507 (42 U.S.C. 1862) Section 3(a)(6), and Executive Order 10521 (March 17, 1954). Within the extent provided by law, all information you provide will be treated as confidential and will be safeguarded in accordance with the provisions of the Privacy Act of 1974. The Social Security Number is solicited under NSF Act of 1950, as amended. Provision of Social Security Number is voluntary; it is used for survey quality control and for Federal program evaluation.

Survey data will be used for statistical purposes only. Information will be reported only in aggregate form or in a manner that does not identify information about any particular person. There are only two exceptions to this policy: (1) information from your form may be used as part of the sample selection procedure for a longitudinal survey of doctorate recipients; and (2) information from your form may be made available to the institution where you received your doctoral degree and to the National Science Foundation, the National Endowment for the Humanities, the National Institutes of Health, the Department of Education, and the Department of Agriculture. These Federal agencies are subject to the provisions of the Privacy Act.

The time needed to complete this form may vary depending on individual circumstances, but the average time is estimated to be 20 minutes. If you have comments regarding this time estimate or suggestions for any other aspect of this collection of information, you may write to the National Science Foundation, Washington, D.C. 20550, Attention: NSF Reports Clearance Officer; or to the Office of Management and Budget, Paperwork Reduction Project (3145-0019), Washington, D.C. 20503.

SPECIALTIES LIST

Instructions: The following field listing is to be used in responding to items 13, 22A, and 23C. If a field marked with an asterisk (*) is chosen in item 13, please write in field of specialization in the space provided.

AGRICULTURE

000 Agricultural Economics
002 Agricultural Business & Mgmt.
005 Animal Breeding & Genetics
010 Animal Nutrition
012 Dairy Science
014 Poultry Science
055 Fisheries Sciences
019 Animal Sciences, Other*
020 Agronomy
025 Plant Breeding & Genetics
030 Plant Path. (See also 120)
032 Plant Protection — Pest Mgmt.
039 Plant Sciences, Other*
042 Food Distribution
043 Food Engineering
044 Food Sciences, Other*
046 Soil Chemistry/Microbiology
049 Soil Sciences, Other*
050 Horticulture Science
066 Forest Biology
068 Forest Engineering
070 Forest Management
072 Wood Science
074 Renewable Natural Resources
079 Forestry & Related Sci., Other*
080 Wildlife/Range Management
098 Agriculture, General
099 Agricultural Sciences, Other*

BIOLOGICAL SCIENCES

100 Biochemistry
105 Biophysics
110 Bacteriology
115 Plant Genetics
120 Plant Path. (See also 030)
125 Plant Physiology
129 Botany, Other*
130 Anatomy
133 Biometrics & Biostatistics
136 Cell Biology (See also 154)
139 Ecology
142 Developmental Bio./Embry.
145 Endocrinology
148 Entomology
151 Immunology
154 Molecular Biology
157 Microbiology
160 Neurosciences
163 Nutritional Sciences
166 Parasitology
169 Toxicology
170 Genetics, Human & Animal
175 Pathology, Human & Animal
(See also 120)
180 Pharmacology, Hum. & Anim.
185 Physiology, Human & Animal
189 Zoology, Other*
198 Biological Sciences, General
199 Biological Sciences, Other*

HEALTH SCIENCES

200 Audiology & Speech Path.
210 Environmental Health
215 Public Health (See also 133)
220 Epidemiology
230 Nursing
240 Pharmacy
250 Veterinary Medicine
298 Health Sciences, General
299 Health Sciences, Other*

ENGINEERING

300 Aerospace, Aeronautical
& Astronautical
303 Agricultural
306 Bioengineering & Biomedical
309 Ceramic
312 Chemical
315 Civil
318 Communications
321 Computer
324 Electrical, Electronics
327 Engineering Mechanics
330 Engineering Physics
333 Engineering Science
336 Environmental Health Engin.
339 Industrial
342 Materials Science
345 Mechanical
348 Metallurgical
351 Mining & Mineral
354 Naval Arch. & Marine Engin.
357 Nuclear
360 Ocean
363 Operations Research
(See also 465, 930)
366 Petroleum
369 Polymer
372 Systems
398 Engineering, General
399 Engineering, Other*

COMPUTER AND INFORMATION SCIENCES

400 Computer Sciences
410 Information Sci. & Systems*

MATHEMATICS

420 Applied Mathematics
425 Algebra
430 Analysis & Functional Analysis
435 Geometry
440 Logic (See also 785)
445 Number Theory
450 Statistics
455 Topology
460 Computing Theory & Practice
465 Operations Research
(See also 363, 930)
498 Mathematics, General
499 Mathematics, Other*

PHYSICAL SCIENCES

Astronomy

500 Astronomy
505 Astrophysics

Atmospheric & Meteorological Sciences

510 Atmospheric Physics & Chem.
512 Atmospheric Dynamics
514 Meteorology
518 Atmos. & Meteor. Sci., Gen.
519 Atmos. & Meteor. Sci., Other*

Chemistry

520 Analytical
522 Inorganic
524 Nuclear
526 Organic
528 Pharmaceutical
530 Physical
532 Polymer
534 Theoretical
538 Chemistry, General
539 Chemistry, Other*
(See 100 Biochemistry)

Geological Sciences

540 Geology
542 Geochemistry
544 Geophysics & Seismology
546 Paleontology
548 Mineralogy, Petrology
550 Stratigraphy, Sedimentation
552 Geomorphology & Glacial Geol.
554 Applied Geology
558 Geological Sciences, General
559 Geological Sciences, Other*

Physics

560 Acoustics
561 Atomic & Molecular
562 Electron
564 Elementary Particle
566 Fluids
568 Nuclear
569 Optics
570 Plasma
572 Polymer
574 Solid State
578 Physics, General
579 Physics, Other*

Other Physical Sciences

580 Environmental Sciences
585 Hydrology & Water Resources
590 Oceanography
595 Marine Sciences
599 Physical Sciences, Other*

PSYCHOLOGY

600 Clinical
603 Cognitive
606 Comparative
609 Counseling
612 Developmental
615 Experimental
618 Educational (See also 822)
621 Industrial & Organizational
(See also 935)
624 Personality
627 Physiological
630 Psychometrics
633 Quantitative
636 School (See also 825)
639 Social
648 Psychology, General
649 Psychology, Other*

SOCIAL SCIENCES

650 Anthropology
652 Area Studies
658 Criminology
662 Demography
666 Economics
668 Econometrics
670 Geography
674 International Relations
678 Political Sci. & Government
682 Public Policy Studies
686 Sociology
690 Statistics (See also 450)
694 Urban Studies
698 Social Sciences, General
699 Social Sciences, Other*

HUMANITIES

History

700 History, American
705 History, European
710 History of Science
718 History, General
719 History, Other*

Letters

720 Classics
723 Comparative Literature
729 Linguistics
732 Literature, American
733 Literature, English
734 English Language
736 Speech & Debate
738 Letters, General
739 Letters, Other*

Foreign Languages and Literature

740 French
743 German
746 Italian
749 Spanish
752 Russian
755 Slavic (other than Russian)
758 Chinese
762 Japanese
765 Hebrew
768 Arabic
769 Other Languages*

Other Humanities

770 American Studies
773 Archeology
776 Art History & Criticism
780 Music
785 Philosophy (See also 440)
790 Religion (See also 984)
795 Theatre
798 Humanities, General
799 Humanities, Other*

EDUCATION

800 Curriculum & Instruction
805 Educ. Administration &
Supervision
810 Educational Media
815 Educ. Stat. & Research
820 Educ. Testing, Evaluation &
Measurement
822 Educational Psychology
(See also 618)
825 School Psychology
(See also 636)
830 Social Foundations
835 Special Education
840 Student Counseling
& Personnel Services
845 Higher Education Research

Teacher Education

850 Pre-elementary
852 Elementary
856 Secondary
858 Adult & Continuing

Teaching Fields

860 Agricultural Educ.
861 Art Educ.
862 Business Educ.
864 English Educ.
866 Foreign Languages Educ.
868 Health Educ.
870 Home Economics Educ.
872 Industrial Arts Educ.
874 Mathematics Educ.
876 Music Educ.
878 Nursing Educ.
880 Physical Educ.
882 Reading Educ.
884 Science Educ.
885 Social Science Educ.
886 Speech Educ.
887 Technical Educ.
888 Trade & Industrial Educ.
889 Teacher & Educ. Specific
Subject Areas, Other*
898 Education, General
899 Education, Other*

PROFESSIONAL FIELDS

Business & Management

900 Accounting
905 Banking & Finance
910 Business Admin. &
Management
915 Business Economics
920 Marketing Mgmt. &
Research
925 Business Statistics
930 Operations Research
(See also 363, 465)
935 Organiz. Beh. (See also 621)
938 Business & Mgmt., General
939 Business & Mgmt., Other*

Communications

940 Communications Research
945 Journalism
950 Radio & Television
958 Communications, General
959 Communications, Other*

Other Professional Fields

960 Architec. & Environ. Design
964 Home Economics
968 Law
972 Library & Archival Science
976 Public Administration
980 Social Work
984 Theology (See also 790)
988 Professional Fields, General
989 Professional Fields, Other*

999 OTHER FIELDS*

Form Approved
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6/91

SURVEY OF EARNED DOCTORATES 1989-90

This form is to be returned to the GRADUATE DEAN, for forwarding to .... The Office of Scientific and Engineering Personnel
National Research Council
2101 Constitution Avenue, Washington, D.C. 20418

Please print or type.

1. Name in full: ____________________
Last Name *First Name* *Middle Name*
Cross Reference: Maiden name or former name legally changed ____________________

2. Permanent address through which you could always be reached: (Care of, if applicable) ____________________
Number *Street* *City*
State *Zip Code* *Or Country if not U.S.*

3. U.S. Social Security Number: ___ ___ ___ - ___ ___ - ___ ___ ___ ___

4. Date of birth: ____________________ Place of birth: ____________________
Month *Day* *Year* *State or Country if not U.S.*

5. Sex: 1 ☐ Male
2 ☐ Female

6. Marital status: 0 ☐ Single, never married
1 ☐ Married
2 ☐ Separated, divorced, widowed

7. Citizenship:
0 ☐ United States, native
1 ☐ United States, naturalized
Non-United States:
2 ☐ Permanent Resident of United States (Immigrant visa)
↳ ____________________
(Country of present citizenship)
3 ☐ Temporary Resident of United States (Non-immigrant visa)
↳ ____________________
(Country of present citizenship)

8. Physical disabilities: 0 ☐ None
1 ☐ No useful sight
2 ☐ No useful hearing
3 ☐ No use of arms and/or legs
5 ☐ Other (specify) ____________________

9. What is your racial background? (Check only one)
0 ☐ American Indian or Alaskan Native
1 ☐ Asian or Pacific Islander
2 ☐ Black
3 ☐ White

10. Are you Hispanic? ☐ No ☐ Yes → 0 ☐ Mexican American
1 ☐ Puerto Rican
2 ☐ Other Hispanic

11. How many dependents do you have? ______ Do not include yourself.
(Dependent = someone receiving at least one half of his or her support from you.)

EDUCATION

12. Location of high school last attended: ____________________ Year of graduation from high school: __________
State or Country if not U.S.

13. List in the table below, chronologically, all colleges (including 2-year colleges) or universities you have attended and each degree earned.

		Years		Field of Study		Degree		
		Attended		Use Specialties List			Granted	
Institution/Branch	State/Country	From	To	Name	Number	Title	Mo	Yr

14. How many years were you a full-time student between receiving your first baccalaureate degree (or equivalent) and receiving your doctorate (include the period spent on your thesis and/or dissertation). __________ (whole numbers)

15. Identify the field of your doctorate and enter below the title of your dissertation. If a project report or a musical or literary composition is a degree requirement in lieu of a dissertation, please check box. ☐ Name of field ____________________
Title ____________________

16. Name the department (or interdisciplinary committee, center, institute, etc.) and school or college of the university which supervised your doctoral program.
Department/Institute/Committee/Program *School*

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(continued on next page)

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17. Please indicate your **primary** and **secondary** sources of support during graduate study by entering "1" and "2" in the boxes. Check (✓) all other sources from which support was received. (Enter only one source as "1" and one source as "2.")

Own/Family Resources
01 ☐ Own Earnings
02 ☐ Spouse's Earnings
03 ☐ Family Contributions

Student Loans
80 ☐ Guaranteed Student Loan (Stafford Loan)
81 ☐ Perkins Loan (includes former National Direct Student Loan)
89 ☐ Other Loan
________ *Specify*

University-Related
10 ☐ Teaching Assistant
11 ☐ Research Assistant
12 ☐ University Fellow
14 ☐ College Work-Study
19 ☐ Other
________ *Specify*

Federal Research Assistant
22 ☐ NIH
32 ☐ NSF
52 ☐ USDA
62 ☐ Other Federal
________ *Specify*

Other Federal Support
21 ☐ NIH Traineeship/Fellowship
29 ☐ Other HHS
33 ☐ NSF Fellowship
40 ☐ Patricia Roberts-Harris Fellowship – Dept. of Ed. (includes former G*POP)
44 ☐ Title VI Foreign Language
49 ☐ Other Dept. Education
60 ☐ Veterans Administration
53 ☐ USDA Fellowship
69 ☐ Other Federal
________ *Specify*

U.S. Nationally Competitive Fellowships (Non-Federal)
70 ☐ Ford Foundation
71 ☐ Rockefeller Foundation
73 ☐ Mellon Foundation
78 ☐ Other Fellowship
________ *Specify*

Other Sources
90 ☐ Business/Employer
91 ☐ Foreign (Non-U.S.) Government
92 ☐ State Government
99 ☐ Other

18. When you receive your doctorate degree, how much money will you owe that is directly related to your undergraduate and/or graduate education (tuition and fees, living expenses and supplies, transportation to and from school)?

0 ☐ None
1 ☐ $5,000 or less
2 ☐ $5,001-$10,000
3 ☐ $10,001-$15,000
4 ☐ $15,001 or more

19A. Please check the category that most fully describes your status during the year immediately preceding the award of the doctorate.
0 ☐ Full-time employed → Go to item 19B →
1 ☐ Held fellowship
2 ☐ Held assistantship
3 ☐ Part-time employed
4 ☐ Not employed
5 ☐ Other (specify) ________

B. If full-time employed, what type of position did you hold?
6 ☐ College or university, faculty
7 ☐ College or university, non-faculty
8 ☐ Elementary or secondary school, teaching
9 ☐ Elementary or secondary school, non-teaching
(11) ☐ Industry or business
(12) ☐ Other (specify) ________

POSTGRADUATION PLANS

20. How definite are your postgraduate plans?
0 ☐ Am returning to, or continuing in, predoctoral employment
1 ☐ Have signed contract or made definite commitment
2 ☐ Am negotiating with one or more specific organizations
3 ☐ Am seeking position but have no specific prospects
4 ☐ Other (specify) ________

21. What best describes your immediate postgraduate plans?
0 ☐ Postdoctoral fellowship
1 ☐ Postdoctoral research associateship
2 ☐ Traineeship
3 ☐ Other study (specify) ________
} Go to Item 22
4 ☐ Employment (other than 0, 1, 2, 3)
5 ☐ Military service
6 ☐ Other (specify) ________
} Go to Item 23

22. If you plan to have a postdoctoral fellowship, associateship, traineeship, or otherwise undertake further study,

A. What will be the field of your postdoctoral study? Please enter number from **Specialties List.** ________

B. What will be the main source of financial support for your research?
0 ☐ U.S. Government
1 ☐ College or university
2 ☐ Private foundation
3 ☐ Nonprofit, other than private foundation
4 ☐ Other (specify) ________
6 ☐ Unknown

Go to Item 24

23A. For what type of employer will you be working?

Education
a ☐ U.S. 4-yr college or university other than medical school
b ☐ U.S. medical school
c ☐ U.S. jr. or community college
d ☐ Elementary or secondary school
e ☐ Foreign institution

Government
f ☐ Foreign government
g ☐ U.S. federal government
h ☐ U.S. state government
i ☐ U.S. local government

Private Sector
j ☐ Nonprofit organization
k ☐ Industry or business
l ☐ Self-employed

Other
m ☐ Other (specify) ________

B. Indicate what your **primary** and **secondary** work activities will be with "1" and "2" in the appropriate boxes.
0 ☐ Research and development
1 ☐ Teaching
2 ☐ Administration
3 ☐ Professional services to individuals
5 ☐ Other

C. In what field will you be working? Please enter number from **Specialties List** ________

Go to Item 24

24. Where do you intend to work/study/live after graduation? ________
State or Country if not U.S.

____
Name and City of Organization, if known

25. What is the highest educational attainment of your mother and father? Please circle.

your father:	Less than high school	High school graduate	Some college	Bachelor's	Master's	Professional	Doctorate
your mother:	Less than high school	High school graduate	Some college	Bachelor's	Master's	Professional	Doctorate
	1	2	3	4	5	6	7

Signature ________ Date ________

If you would like a summary of the results of this survey, please check box. ☐

section c

detailed statistical tables

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Table 1. Science and engineering doctorates by subfield and sex: 1960-89

	Year of doctorate													
Field of study	Total 1960-1964	Total 1965-1969	Total 1960-1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-1979
TOTAL, MALE AND FEMALE														
TOTAL, SCIENCE/ENGINEERING	38229	66120	104349	18044	19363	19324	19352	18694	18710	18268	17723	17383	17589	184450
TOTAL, SCIENCES	32258	52998	85256	14598	15849	15815	15978	15533	15699	15430	15075	14958	15095	154030
PHYSICAL SCIENCES	9525	14897	24422	3893	3949	3653	3444	3136	3076	2861	2721	2611	2674	32018
Physics/astronomy	3520	6316	9836	1655	1738	1634	1589	1339	1300	1237	1150	1067	1108	13817
Acoustics	47	47	94	23	19	20	15	13	12	9	12	14	13	150
Astronomy(1)	-	36	36	48	59	63	64	57	60	78	63	64	58	614
Astronomy/astrophysics(1)	134	301	435	-	-	-	-	-	-	-	-	-	-	-
Astrophysics(1)	-	67	67	63	54	66	67	76	71	72	57	74	57	657
Atomic/molecular	402	627	1029	152	124	150	122	122	140	116	105	88	72	1191
Electron(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Electromagnetism(3)	106	126	232	18	18	11	13	8	10	12	9	10	6	115
Elementary particle	535	1026	1561	256	277	198	222	146	126	130	138	135	121	1749
Fluids	89	188	277	21	21	28	28	20	22	20	14	13	14	201
Mechanics(4)	23	40	63	7	6	7	6	4	3	4	-	-	-	37
Nuclear(5)	686	900	1586	212	226	234	182	145	130	96	94	77	103	1499
Optics	37	66	103	30	25	31	33	24	33	50	31	33	46	336
Plasma	-	63	63	85	86	93	73	57	53	75	72	68	62	724
Polymer(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Solid state	807	1723	2530	403	442	393	400	349	321	282	258	243	243	3334
Theoretical physics(6)	260	-	260	-	-	-	-	-	-	-	-	-	-	-
Thermal(7)	31	92	123	17	17	18	16	16	9	4	7	11	7	122
Physics, general	136	462	598	160	164	154	206	180	173	175	173	151	194	1730
Physics, other	227	552	779	160	200	168	142	122	137	114	117	86	112	1358
Chemistry	6005	8581	14586	2238	2211	2019	1855	1797	1776	1624	1571	1544	1566	18201
Agricultural/food	188	240	428	62	58	22	9	13	8	14	6	8	11	211
Analytical	420	623	1043	160	174	147	128	147	142	152	174	178	207	1609
Inorganic	561	1014	1575	303	297	289	262	201	229	226	198	201	195	2401
Nuclear	135	137	272	34	36	22	24	31	21	25	24	13	14	244
Organic	2496	3490	5986	843	810	714	645	615	605	497	479	454	469	6131
Pharmaceutical	203	267	470	58	66	48	50	65	66	55	50	51	43	552
Physical	1716	2264	3980	558	502	472	457	389	393	355	339	310	326	4101
Polymer	-	-	-	-	-	-	14	35	40	42	55	57	67	310
Theoretical	102	192	294	64	65	67	53	51	46	48	38	46	50	528
Chemistry, general	107	198	305	87	102	133	140	197	169	144	146	161	126	1405
Chemistry, other	77	156	233	69	101	105	73	53	57	66	62	65	58	709
EARTH, ATMOS, & MARINE SCI	1380	2123	3503	498	536	598	624	615	625	641	689	621	642	6089
Applied geo, geo eng(8)	110	123	233	-	-	-	-	-	-	-	-	-	-	-
Applied geology(8)	-	27	27	17	27	41	22	31	22	23	20	15	19	237
Atmos/meteorol sci, gen(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Atmos/meteorol sci, other	-	-	-	-	-	-	-	-	-	23	46	34	42	145
Atmospheric dynamics	-	-	-	-	-	-	-	-	-	14	32	21	26	93
Atmospheric phys/chem	-	-	-	-	-	-	-	-	-	16	15	22	16	69
Environmental sciences(9)	-	-	-	-	-	22	55	53	77	61	54	45	53	420
Geochemistry(10)	-	41	41	40	53	37	42	46	49	49	57	51	57	481
Geology(11)		-	-	-	-	-	-	-	-	-	-	-	-	-
Structural geology(11)	64	130	194	12	28	24	21	15	16	22	22	28	28	216
Geomorph/glacial geology	47	68	115	17	23	19	27	23	30	29	22	24	14	229
Geophysics/seismology(12)	-	-	-	-	-	-	-	-	-	40	73	[illegible]	61	[illegible]
Geophysics(12)	126	190	316	67	66	78	67	80	92	33	-	-	-	483
Hydrology/water res(13)	14	51	65	20	28	13	30	17	18	15	23	31	20	215
Marine sciences(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marine sciences, other(14)	-	-	-	-	-	-	-	-	-	-	9	28	31	68
Meteorology(15)	107	203	310	55	59	78	58	57	45	23	-	-	-	375
Mineral, petrol, geochem(10)	376	379	755	-	-	-	-	-	-	-	-	-	-	-
Minerology, petrology(10)	-	50	50	57	48	61	47	41	43	48	60	34	33	472
Oceanography	61	207	268	66	53	78	88	81	86	89	113	98	91	843
Paleontology	132	207	339	40	32	35	44	41	41	43	26	31	36	369
Stratigraphy, sediment	296	276	572	56	67	51	55	48	43	57	42	32	34	485
Geological sciences, gen(16)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Geological sciences, oth(16)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Earth sciences, general(16)	27	94	121	29	27	29	41	55	32	33	44	45	37	372
Earth sciences, other(16)	20	77	97	22	25	32	27	27	31	23	31	22	24	264
Physical sciences, other(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MATHEMATICS	2082	4325	6407	1225	1238	1281	1232	1211	1147	1003	933	838	769	10877
Algebra	270	679	949	191	200	167	142	125	126	116	88	87	88	1330
Analysis/funct analysis(17)	556	1060	1616	244	261	241	244	208	180	141	153	118	111	1901
Applied mathematics	258	573	831	147	122	119	119	136	101	105	113	108	111	1181
Computing theory	48	207	255	119	140	163	225	203	166	148	101	55	25	1345
Geometry	86	129	215	40	35	35	32	38	26	23	26	22	25	302
Logic	53	130	183	36	32	39	33	19	38	34	17	24	21	293
Number theory	83	98	181	27	33	36	31	23	27	26	32	18	17	270
Operations research	-	-	-	-	-	-	3	24	55	36	42	43	43	246
Probability/math stat (18)	367	527	894	85	97	151	157	148	174	165	159	168	165	1469
Topology	259	531	790	143	121	130	111	117	94	72	70	56	61	975
Mathematics, general	61	215	276	95	108	112	94	122	114	94	88	92	80	999
Mathematics, other	41	176	217	98	89	88	41	48	46	43	44	47	22	566
COMPUTER/INFORMATION SCIENCES	-	-	-	-	-	-	1	-	-	-	31	121	210	363
Computer sciences	-	-	-	-	-	-	1	-	-	-	31	121	210	363
Information sci/systems(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-

See footnotes at end of table.

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Table 1. Science and engineering doctorates by subfield and sex: 1960-89--continued

	Year of doctorate											
Field of study	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1980-1989	Total 1960-1989
TOTAL, MALE AND FEMALE												
TOTAL, SCIENCE/ENGINEERING	17524	17996	18017	18393	18514	18711	19251	19702	20738	21516	190362	479161
TOTAL, SCIENCES	15045	15468	15371	15612	15601	15545	15875	15991	16549	16980	158037	397323
PHYSICAL SCIENCES	2521	2627	2694	2802	2845	2916	3090	3212	3318	3249	29274	85714
Physics/astronomy	983	1015	1014	1043	1080	1080	1187	1237	1302	1278	11219	34872
Acoustics	23	13	11	14	21	10	15	17	16	15	155	399
Astronomy(1)	52	50	52	50	42	43	52	46	66	49	502	1152
Astronomy/astrophysics(1)	-	-	-	-	-	-	-	-	-	-	-	435
Astrophysics(1)	69	59	50	65	56	57	57	54	64	64	595	1319
Atomic/molecular	69	66	96	71	77	58	70	79	77	75	738	2958
Electron(2)	-	-	-	1	2	4	2	6	2	4	21	21
Electromagnetism(3)	-	-	-	-	-	-	-	-	-	-	-	347
Elementary particle	117	119	119	136	138	154	147	159	174	134	1397	4707
Fluids	15	14	13	15	11	16	6	21	17	14	142	620
Mechanics(4)	-	-	-	-	-	-	-	-	-	-	-	100
Nuclear(5)	73	63	53	90	72	86	89	74	88	81	769	3854
Optics	43	54	42	50	53	51	58	50	65	78	544	983
Plasma	59	65	69	72	73	55	61	72	65	61	652	1439
Polymer(2)	-	-	-	10	8	11	11	15	20	7	82	82
Solid state	201	253	235	222	258	248	280	287	252	297	2533	8397
Theoretical physics(6)	-	-	-	-	-	-	-	-	-	-	-	260
Thermal(7)	5	7	-	-	-	-	-	-	-	-	12	257
Physics, general	165	164	167	150	170	176	222	238	271	271	1994	4322
Physics, other	92	88	107	97	99	111	117	119	125	128	1083	3220
Chemistry	1538	1612	1680	1759	1765	1836	1903	1975	2016	1971	18055	50842
Agricultural/food	-	-	-	-	-	-	-	-	-	-	-	639
Analytical	185	229	190	264	228	285	257	314	301	289	2542	5194
Inorganic	189	188	226	215	233	251	260	240	251	256	2309	6285
Nuclear	14	12	20	13	18	7	18	13	7	6	128	644
Organic	484	494	519	503	525	494	511	511	531	505	5077	17194
Pharmaceutical	52	52	55	78	56	60	58	65	73	65	614	1636
Physical	282	275	324	311	329	304	293	302	318	309	3047	11128
Polymer	61	62	50	62	63	84	72	96	81	78	709	1019
Theoretical	47	33	32	48	37	48	41	46	50	46	428	1250
Chemistry, general	157	193	175	177	183	213	289	297	310	320	2314	4024
Chemistry, other	67	74	89	88	93	90	104	91	94	97	887	1829
EARTH, ATMOS, & MARINE SCI	628	583	657	637	614	617	589	628	728	738	6419	16011
Applied geo, geo eng(8)	-	-	-	-	-	-	-	-	-	-	-	233
Applied geology(8)	27	21	25	8	7	8	4	5	7	5	117	381
Atmos/meteorol sci, gen(2)	-	-	-	16	5	10	7	16	14	14	82	82
Atmos/meteorol sci, other	51	33	26	27	12	10	7	13	10	15	204	349
Atmospheric dynamics	20	27	22	16	25	21	16	17	25	15	204	297
Atmospheric phys/chem	19	15	17	21	11	16	21	24	19	15	178	247
Environmental sciences(9)	40	54	53	50	45	42	35	29	58	68	474	894
Geochemistry(10)	51	48	51	48	43	48	37	31	46	39	442	964
Geology(11)	-	-	-	105	124	111	118	114	144	165	881	881
Structural geology(11)	20	27	25	-	-	-	-	-	-	-	72	482
Geomorph/glacial geology	15	13	21	10	9	13	11	18	9	10	129	472
Geophysics/seismology(12)	71	72	81	75	68	92	89	75	83	88	794	1048
Geophysics(12)	-	-	-	-	-	-	-	-	-	-	-	799
Hydrology/water res(13)	27	21	24	20	18	17	16	18	24	24	209	489
Marine sciences(2)	-	-	-	22	21	24	22	38	28	26	181	181
Marine sciences, other(14)	25	30	41	-	-	-	-	-	-	-	96	164
Meteorology(15)	-	-	-	17	28	23	27	17	35	27	174	859
Mineral, petrol, geochem(10)	-	-	-	-	-	-	-	-	-	-	-	755
Minerology, petrology(10)	47	30	41	24	28	28	17	24	19	36	294	816
Oceanography	85	70	92	87	78	68	78	73	81	86	798	1909
Paleontology	21	19	24	17	35	23	16	21	24	17	217	925
Stratigraphy, sediment	40	42	47	25	16	23	14	22	30	24	283	1340
Geological sciences, gen(16)	-	-	-	15	10	11	12	18	8	19	93	93
Geological sciences, oth(16)	-	-	-	21	25	11	12	29	31	27	156	156
Earth sciences, general(16)	48	45	38	-	-	-	-	-	-	-	131	624
Earth sciences, other(16)	21	16	29	-	-	-	-	-	-	-	66	427
Physical sciences, other(2)	-	-	-	13	6	18	30	26	33	18	144	144
MATHEMATICS	744	728	720	701	698	688	729	740	749	861	7358	24642
Algebra	78	56	60	55	65	55	46	57	54	50	576	2855
Analysis/funct analysis(17)	91	105	98	76	71	83	81	86	76	101	868	4385
Applied mathematics	102	118	108	125	108	116	135	131	142	158	1243	3255
Computing theory	13	16	11	12	13	15	10	14	12	12	128	1728
Geometry	35	29	32	44	27	35	38	30	44	47	361	878
Logic	24	18	17	21	25	30	23	18	20	12	208	684
Number theory	28	24	28	19	27	18	20	15	26	23	228	679
Operations research	41	36	36	20	27	22	29	22	29	22	284	530
Probability/math stat (18)	151	163	165	151	181	150	141	143	152	167	1564	3927
Topology	57	55	45	44	42	35	34	41	27	37	417	2182
Mathematics, general	83	77	84	86	78	85	125	137	134	181	1070	2345
Mathematics, other	41	31	36	48	34	44	47	46	33	51	411	1194
COMPUTER/INFORMATION SCIENCES	218	232	220	286	295	310	399	450	515	612	3537	3900
Computer sciences	218	232	220	264	256	249	355	384	442	519	3139	3502
Information sci/systems(2)	-	-	-	22	39	61	44	66	73	93	398	398

See footnotes at end of table.

Table 1. Science and engineering doctorates by subfield and sex: 1960-89--continued

Field of study	Total 1960-1964	Total 1965-1969	Total 1960-1969	Year of doctorate										
				1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-1979
TOTAL, MALE AND FEMALE														
AGRICULTURAL & BIOLOGICAL SCI	9404	15542	24946	4165	4557	4454	4503	4304	4402	4361	4266	4369	4501	43882
Agricultural sciences	2305	3165	5470	804	903	854	855	820	905	788	782	853	855	8419
Agric business & mgmt (19)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Agronomy	712	854	1566	198	191	142	153	132	134	146	123	137	138	1494
Animal breeding/genetics(20)	574	650	1224	124	94	68	35	17	21	17	25	21	26	448
Animal nutrition(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Animal sci/nutrition(21)	-	1	1	-	-	68	113	136	130	119	101	101	112	880
Dairy science(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Poultry science(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Animal sciences, other(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fish/wildlife(22)	98	128	226	47	61	49	48	54	63	55	66	61	66	570
Fisheries science(22)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wildlife management(22)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wildlife/range mgmt(22)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Food sciences(23)	-	39	39	37	77	81	92	101	111	91	107	117	107	921
Food engineering(23)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Food sciences, other(23)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Forestry science(24)	164	302	466	75	84	74	79	74	86	79	66	88	87	792
Forest biology(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Forest engineering(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Forest management(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wood science(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Renewable natrl resrces(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Forestry&relatd sci, oth(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Horticulture science	249	340	589	69	75	85	50	44	77	51	60	65	69	645
Plant breeding/genetics(25).	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Plant pathology(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phytopathology(25)	389	482	871	106	109	93	102	91	100	83	82	89	88	943
Plant protectn-pest mgmt(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Plant sciences, other(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Soil sciences(26)	-	40	40	41	57	85	102	90	97	69	72	97	71	781
Soil chem/microbio(26)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Soil sciences, other(26)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Agriculture, general	9	36	45	4	2	5	4	5	8	9	6	6	7	56
Agriculture, other	110	293	403	103	153	104	77	76	78	69	74	71	84	889
Biological sciences	7099	12377	19476	3361	3654	3600	3648	3484	3497	3573	3484	3516	3646	35463
Anatomy	233	446	679	124	154	159	127	122	119	133	116	144	151	1349
Biochemistry	1491	2485	3976	583	658	585	635	599	620	617	609	607	603	6116
Biometrics/biostat	64	113	177	38	43	30	35	36	37	46	52	45	44	406
Biophysics	157	445	602	106	102	114	115	122	112	123	141	110	133	1178
Botany, other(27)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Botany(27)	573	811	1384	177	202	195	210	177	155	182	158	148	141	1745
Cell biology(28)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cytology(28)	66	178	244	56	55	36	39	40	41	46	37	33	39	422
Ecology	184	293	477	112	118	134	134	149	142	140	163	170	173	1435
Embryology	48	169	217	41	37	35	29	22	27	13	19	15	14	252
Endocrinology(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Entomology	483	740	1223	178	218	195	184	175	170	145	153	146	162	1726
Human/animal genetics(29)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Plant genetics(29)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Genetics(29)	422	638	1060	150	153	160	128	126	156	143	141	126	141	1424
Human/animal pathology(30)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Plant pathology(30)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pathology(30)	108	216	324	40	69	89	79	81	67	94	99	90	85	793
Human/animal pharmacol	337	621	958	150	175	188	160	176	166	205	196	216	220	1852
Human/animal physiol(31)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Animal physiology(31)	399	1229	1628	345	361	343	357	313	332	285	321	315	314	3286
Animal/plant physiol(31)	307	-	307	-	-	-	-	-	-	-	-	-	-	-
Plant physiology(31)	158	396	554	96	90	75	92	77	67	62	43	43	57	702
Hydrobiology	34	61	95	28	27	24	11	17	8	13	14	3	10	155
Immunology	-	-	-	-	-	18	50	69	71	93	101	94	134	630
Microbiology(32)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bacteriology(32)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Microbiology/bacteriol(32)	963	1638	2601	399	408	397	382	382	363	362	312	349	349	3703
Molecular biology	-	91	91	95	109	155	119	140	156	148	131	172	140	1365
Neurosciences	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nutritional sciences(33)	27	-	27	-	-	-	-	-	-	85	82	90	107	364
Parasitology	-	-	-	-	-	-	19	26	18	19	17	13	21	133
Toxicology(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zoology, other(34)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zoology(34)	922	1320	2242	341	355	356	331	260	271	258	254	231	249	2906
Biological sci, general	36	194	230	121	164	137	194	191	185	190	178	191	187	1738
Biological sci, other	87	293	380	181	156	175	218	184	214	171	147	165	172	1783

See footnotes at end of table.

Table 1. Science and engineering doctorates by subfield and sex: 1960-89--continued

	Year of doctorate											
Field of study	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1980-1989	Total 1960-1989
TOTAL, MALE AND FEMALE												
AGRICULTURAL & BIOLOGICAL SCI	4715	4786	4844	4756	4877	4903	4805	4812	5123	5194	48815	117643
Agricultural sciences	912	982	951	1015	997	1111	998	976	1015	1088	10045	23934
Agric business & mgmt (19)	-	-	-	-	-	-	-	-	-	2	2	2
Agronomy	151	177	159	149	137	158	159	143	141	140	1514	4574
Animal breeding/genetics(20)	25	19	22	25	28	28	25	23	27	23	245	1917
Animal nutrition(21)	-	-	-	56	71	78	65	82	54	66	472	472
Animal sci/nutrition(21)	119	149	133	-	-	-	-	-	-	-	401	1282
Dairy science(21)	-	-	-	-	-	-	-	-	12	16	28	28
Poultry science(21)	-	-	-	-	-	-	-	-	10	11	21	21
Animal sciences, other(21)	-	-	-	92	90	95	91	76	86	95	625	625
Fish/wildlife(22)	73	66	65	-	-	-	-	-	-	-	204	1000
Fisheries science(22)	-	-	-	36	45	36	32	32	42	34	257	257
Wildlife management(22)	-	-	-	31	31	38	20	23	3	-	146	146
Wildlife/range mgmt(22)	-	-	-	-	-	-	-	-	36	52	88	88
Food sciences(23)	102	104	110	141	113	136	121	131	16	1	975	1935
Food engineering(23)	-	-	-	-	-	-	-	-	6	11	17	17
Food sciences, other(23)	-	-	-	-	-	-	-	-	119	147	266	266
Forestry science(24)	80	95	78	90	94	105	88	100	15	-	745	2003
Forest biology(24)	-	-	-	-	-	-	-	-	21	22	43	43
Forest engineering(24)	-	-	-	-	-	-	-	-	3	1	4	4
Forest management(24)	-	-	-	-	-	-	-	-	18	21	39	39
Wood science(24)	-	-	-	-	-	-	-	-	7	16	23	23
Renewable natrl resrces(24)	-	-	-	-	-	-	-	-	7	12	19	19
Forestry&relatd sci, oth(24)	-	-	-	-	-	-	-	-	35	57	92	92
Horticulture science	73	85	88	72	66	76	60	71	61	75	727	1961
Plant breeding/genetics(25)	-	-	-	71	78	88	78	70	83	64	532	532
Plant pathology(25)	-	-	-	92	57	89	85	76	46	63	508	508
Phytopathology(25)	118	99	114	-	-	-	-	-	-	-	331	2145
Plant protectn-pest mgmt(25)	-	-	-	-	-	-	-	-	1	7	8	8
Plant sciences, other(25)	-	-	-	16	20	21	22	20	23	15	137	137
Soil sciences(26)	79	90	83	85	99	97	103	74	18	-	728	1549
Soil chem/microbio(26)	-	-	-	-	-	-	-	-	33	28	61	61
Soil sciences, other(26)	-	-	-	-	-	-	-	-	62	75	137	137
Agriculture, general	3	5	5	7	1	5	4	5	9	7	51	152
Agriculture, other	89	93	94	52	67	61	45	50	21	27	599	1891
Biological sciences	3803	3804	3893	3741	3880	3792	3807	3836	4108	4106	38770	93709
Anatomy	147	156	163	107	103	135	86	92	88	79	1156	3184
Biochemistry	673	645	649	647	606	581	576	573	612	670	6232	16324
Biometrics/biostat	42	48	59	45	49	40	30	37	47	46	443	1026
Biophysics	108	99	91	88	90	69	72	86	97	87	887	2667
Botany, other(27)	-	-	-	116	126	120	121	106	112	117	818	818
Botany(27)	144	147	146	-	-	-	-	-	-	-	437	3566
Cell biology(28)	-	-	-	118	123	100	130	127	118	132	848	848
Cytology(28)	44	47	41	-	-	-	-	-	-	-	132	798
Ecology	169	198	173	183	202	200	183	158	155	162	1783	3695
Embryology	18	20	10	13	15	15	9	6	7	10	123	592
Endocrinology(2)	-	-	-	28	30	17	17	19	21	21	153	153
Entomology	161	143	170	141	156	173	170	123	133	138	1508	4457
Human/animal genetics(29)	-	-	-	95	82	105	91	113	118	112	716	716
Plant genetics(29)	-	-	-	19	20	31	20	26	26	18	160	160
Genetics(29)	157	157	176	-	-	-	-	-	-	-	490	2974
Human/animal pathology(30)	-	-	-	97	88	110	91	127	112	103	728	728
Plant pathology(30)	-	-	-	29	30	38	28	33	30	22	210	210
Pathology(30)	108	106	97	-	-	-	-	-	-	-	311	1428
Human/animal pharmacol	257	280	280	218	237	235	245	233	249	238	2472	5282
Human/animal physiol(31)	-	-	-	246	237	244	240	246	225	271	1709	1709
Animal physiology(31)	340	327	309	-	-	-	-	-	-	-	976	5890
Animal/plant physiol(31)	-	-	-	-	-	-	-	-	-	-	-	307
Plant physiology(31)	52	68	56	67	70	58	52	62	74	47	606	1862
Hydrobiology	-	-	-	-	-	-	-	-	-	-	-	250
Immunology	125	148	151	154	133	124	146	135	178	152	1446	2076
Microbiology(32)	-	-	-	309	346	289	326	301	333	340	2244	2244
Bacteriology(32)	-	-	-	10	12	17	12	13	7	12	83	83
Microbiology/bacteriol(32)	365	355	324	-	-	-	-	-	-	-	1044	7348
Molecular biology	183	187	223	225	275	277	298	303	364	407	2742	4198
Neurosciences	-	-	117	134	145	156	120	153	162	181	1168	1168
Nutritional sciences(33)	90	99	120	111	109	113	122	141	127	128	1160	1551
Parasitology	22	18	14	9	30	21	25	16	20	20	195	328
Toxicology(2)	-	-	-	60	97	99	104	115	108	110	693	693
Zoology, other(34)	-	-	-	192	158	147	155	139	167	133	1091	1091
Zoology(34)	226	198	199	-	-	-	-	-	-	-	623	5771
Biological sci, general	209	204	196	174	190	190	213	229	258	236	2099	4067
Biological sci, other	163	154	129	106	121	88	125	124	160	114	1284	3447

See footnotes at end of table.

Table 1. Science and engineering doctorates by subfield and sex: 1960-89--continued

	Year of doctorate													
Field of study	Total 1960-1964	Total 1965-1969	Total 1960-1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-1979
TOTAL, MALE AND FEMALE														
SOCIAL SCIENCES	5516	9493	15009	2927	3424	3550	3716	3669	3698	3681	3445	3343	3208	34661
Agricultural economics	-	92	92	114	170	162	178	182	162	162	143	159	154	1586
Anthropology	370	645	1015	217	239	260	326	379	386	428	385	399	383	3402
Area studies	19	82	101	71	77	34	29	35	36	30	18	26	24	380
Criminology(35)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Demography(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Econometrics	76	131	207	27	27	33	31	19	27	30	29	23	22	268
Economics	2084	3202	5286	826	793	861	912	834	868	855	811	778	780	8318
Geography	292	403	695	137	158	177	215	195	187	155	155	158	129	1666
History of science(36)	-	-	-	-	35	39	30	33	27	36	29	25	28	282
International relations	276	436	712	102	146	112	128	133	113	123	96	92	81	1126
Linguistics	246	492	738	137	175	160	208	168	194	152	190	175	156	1715
Pol sci/government(37)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Political science(37)	-	-	-	-	-	-	-	1	1	628	614	603	522	2369
Pol sci, public admin(37)	1121	2002	3123	534	675	799	780	775	748	40	-	-	-	4351
Public policy studies(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sociology	925	1613	2538	505	587	639	599	645	680	734	725	610	632	6356
Statistics	-	134	134	121	133	85	65	37	43	35	35	46	23	623
Urban studies(38)	-	-	-	-	33	52	53	70	76	92	80	76	91	623
Social sciences, general	25	40	65	21	22	21	38	34	36	35	27	33	33	300
Social sciences, other	82	221	303	115	154	116	124	129	114	146	108	140	150	1296
PSYCHOLOGY	4351	6618	10969	1890	2145	2279	2458	2598	2751	2883	2990	3055	3091	26140
Clinical	1536	2138	3674	549	622	679	746	771	810	883	936	1061	1069	8126
Cognitive(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Comparative(39)	45	70	115	22	15	21	24	23	22	28	22	20	21	218
Counseling(40)	287	392	679	113	146	151	200	201	231	267	269	278	315	2171
Developmental(41)	107	252	359	84	114	135	149	162	181	190	203	208	221	1647
Educational	262	288	550	88	96	127	115	122	134	124	136	145	163	1250
Exper, compar, physiol(39)	450	7	457	-	-	-	-	-	-	-	-	-	-	-
Experimental(39)	532	1384	1916	366	396	353	333	354	351	357	338	299	293	3440
Indust/organizational(42)	188	248	436	75	68	55	76	80	63	73	81	74	87	732
Physiological(39)	113	404	517	116	130	121	122	118	124	133	132	126	102	1224
Quantitative(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Personality	121	164	285	50	46	51	51	60	62	62	63	41	42	528
Psychometrics	91	97	188	18	36	25	24	24	17	27	19	15	25	230
School	70	115	185	45	70	89	109	89	103	143	148	125	125	1046
Social	409	620	1029	157	172	183	214	202	233	209	202	204	216	1992
Psychology, general	96	299	395	122	127	133	155	250	244	218	262	299	207	2017
Psychology, other	44	140	184	85	107	156	140	142	176	169	179	160	205	1519
TOTAL, ENGINEERING	5971	13122	19093	3446	3514	3509	3374	3161	3011	2838	2648	2425	2494	30420
Aeronaut/astronautical(43)	252	696	948	204	198	181	167	148	141	122	115	103	81	1460
Agricultural	101	182	283	56	61	67	75	52	56	37	33	43	66	546
Bioengineering/biomed(44)	-	37	37	45	71	77	71	62	76	73	75	79	69	698
Ceramic	96	200	296	46	44	31	26	26	22	24	30	24	24	297
Chemical	1127	1842	2969	445	391	385	408	388	370	314	306	261	287	3555
Civil	598	1326	1924	311	379	362	357	324	290	314	269	236	236	3078
Communications(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Computer	-	-	-	-	-	-	-	-	102	119	123	76	78	498
Electrical/electronics(45)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Electrical(45)	1235	2706	3941	706	745	690	673	594	536	512	461	410	450	5777
Electronics(45)	331	606	937	151	117	125	114	84	76	80	83	53	83	966
Engineering mechanics	446	1055	1501	235	213	208	177	167	162	113	102	95	85	1557
Engineering physics(46)	232	548	780	41	38	39	34	25	19	19	20	15	17	267
Engineering science(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Environmental health eng(47)	115	250	365	55	48	75	78	66	71	74	67	67	66	667
Fuel tech/petro eng(8)	-	23	23	12	16	6	10	14	9	4	5	2	4	82
Industrial	106	348	454	117	134	142	109	92	92	67	73	51	82	959
Materials science	-	22	22	35	52	88	132	116	132	117	125	125	125	1047
Mechanical	683	1608	2291	400	398	408	364	377	325	304	270	282	281	3409
Metallurgical(48)	487	955	1442	222	210	175	141	138	118	111	93	98	87	1393
Mining/mineral(49)	-	10	10	10	15	16	12	2	7	6	2	7	4	81
Naval arch/marine engin(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nuclear(46)	-	120	120	118	120	117	129	111	89	134	105	107	95	1125
Ocean(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Operations research	-	-	-	-	1	62	104	128	89	82	76	84	67	693
Petroleum(50)	-	-	-	-	-	-	6	16	17	17	18	19	24	117
Polymer(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Systems(51)	-	-	-	-	-	-	-	-	79	69	71	63	75	357
Engineering, general	17	107	124	38	34	33	37	54	38	41	33	44	32	384
Engineering, other	145	481	626	199	229	222	150	177	95	85	93	81	76	1407
TOTAL, NON-SCI/ENGINEERING(52)	20470	37251	57721	11454	12504	13717	14403	14353	14241	14678	13993	13492	13650	136485
TOTAL, ALL FIELDS	58699	103371	162070	29498	31867	33041	33755	33047	32951	32946	31716	30875	31239	320935

See footnotes at end of table.

Table 1. Science and engineering doctorates by subfield and sex: 1960-89--continued

Field of study	Year of doctorate											
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1980-1989	Total 1960-1989
TOTAL, MALE AND FEMALE												
SOCIAL SCIENCES	3121	3154	3077	3083	3015	2994	3139	2980	3052	3117	30732	80402
Agricultural economics	160	168	179	157	158	147	158	136	155	164	1582	3260
Anthropology	370	369	333	373	335	353	381	352	325	324	3515	7932
Area studies	22	20	19	20	23	19	28	17	16	17	201	682
Criminology(35)	30	35	36	49	41	38	24	29	43	34	359	359
Demography(2)	-	-	-	26	19	25	15	26	19	21	151	151
Econometrics	22	17	24	21	27	27	25	25	27	26	241	716
Economics	745	808	737	792	767	785	835	798	826	872	7965	21569
Geography	131	109	106	121	114	120	120	111	129	105	1166	3527
History of science(36)	21	26	29	13	24	23	24	25	22	19	226	508
International relations	80	87	77	76	95	78	76	82	77	92	820	2658
Linguistics	182	176	191	164	160	176	189	199	166	188	1791	4244
Pol sci/government(37)	-	-	-	397	419	406	414	404	392	432	2864	2864
Political science(37)	505	445	459	-	-	-	-	-	-	-	1409	3778
Pol sci, public admin(37) ..	-	-	-	-	-	-	-	-	-	-	-	7474
Public policy studies(2) ...	-	-	-	69	54	70	81	83	73	77	507	507
Sociology	601	605	568	525	515	461	491	423	449	435	5073	13967
Statistics	33	40	43	47	39	60	65	49	47	69	492	1249
Urban studies(38)	79	94	93	74	81	75	50	72	87	60	765	1388
Social sciences, general ...	32	22	34	17	17	17	36	30	28	25	258	623
Social sciences, other	108	133	149	142	127	114	127	119	171	157	1347	2946
PSYCHOLOGY	3098	3358	3159	3347	3257	3117	3124	3169	3064	3209	31902	69011
Clinical	1106	1259	1168	1241	1195	1181	1172	1214	1092	1234	11862	23662
Cognitive(2)	-	-	-	65	77	76	70	80	83	79	530	530
Comparative(39)	8	11	12	11	13	11	14	9	7	8	104	437
Counseling(40)	299	351	348	432	464	431	449	486	482	498	4240	7090
Developmental(41)	207	201	192	219	207	175	184	200	176	148	1909	3915
Educational	137	180	140	154	210	127	106	89	103	106	1352	3152
Exper, compar, physiol(39) .	-	-	-	-	-	-	-	-	-	-	-	457
Experimental(39)	307	283	240	209	169	165	147	146	135	145	1946	7302
Indust/organizational(42) ..	66	87	83	90	106	102	110	107	118	102	971	2139
Physiological(39)	108	102	90	94	73	79	73	69	85	62	835	2576
Quantitative(2)	-	-	-	14	17	16	23	13	12	11	106	106
Personality	43	49	36	32	25	21	16	25	18	28	293	1106
Psychometrics	21	27	8	10	6	10	11	9	11	6	119	537
School	176	133	166	121	89	92	116	93	115	107	1208	2439
Social	190	180	179	191	157	167	141	133	140	126	1604	4625
Psychology, general	210	279	242	292	267	265	308	339	361	397	2960	5372
Psychology, other	220	216	255	172	182	199	184	157	126	152	1863	3566
TOTAL, ENGINEERING	2479	2528	2646	2781	2913	3166	3376	3711	4189	4536	32325	81838
Aeronaut/astronautical(43) .	81	97	86	106	119	124	118	142	150	177	1200	3608
Agricultural	68	64	48	58	74	60	52	74	70	102	670	1499
Bioengineering/biomed(44) ..	68	64	59	74	70	69	67	75	114	115	775	1510
Ceramic	24	24	20	24	25	19	25	42	30	35	268	861
Chemical	285	296	306	349	361	440	476	527	625	624	4289	10813
Civil	240	287	308	354	351	358	387	441	489	498	3713	8715
Communications(2)	-	-	-	25	11	30	23	26	24	25	164	164
Computer	62	71	72	83	56	55	77	62	100	117	755	1253
Electrical/electronics(45) .	-	-	-	436	587	629	706	691	885	993	4927	4927
Electrical(45)	405	410	470	66	6	2	-	-	-	-	1359	11077
Electronics(45)	73	68	74	15	-	-	-	-	-	-	230	2133
Engineering mechanics	91	78	103	68	91	89	94	113	105	109	941	3999
Engineering physics(46)	18	22	12	10	8	12	13	13	9	16	133	1180
Engineering science(2)	-	-	-	30	28	31	30	26	32	27	204	204
Environmental health eng(47)	66	71	60	43	57	33	42	36	43	42	493	1525
Fuel tech/petro eng(8)	-	-	-	-	-	-	-	-	-	-	-	105
Industrial	77	66	79	86	84	92	101	120	127	161	993	2406
Materials science	143	113	147	157	168	188	187	238	252	257	1850	2919
Mechanical	293	282	334	311	336	424	442	543	610	648	4223	9923
Metallurgical(48)	106	97	88	87	78	96	93	112	92	87	936	3771
Mining/mineral(49)	4	8	7	22	16	16	22	27	17	33	172	263
Naval arch/marine engin(2) .	-	-	-	4	5	8	9	7	9	9	51	51
Nuclear(46)	112	130	121	103	120	96	98	84	104	86	1054	2299
Ocean(2)	-	-	-	12	11	25	14	24	21	20	127	127
Operations research	63	80	58	44	50	54	54	51	44	67	565	1258
Petroleum(50)	31	21	27	22	17	24	18	23	33	29	245	362
Polymer(2)	-	-	-	21	31	40	37	34	28	58	249	249
Systems(51)	61	68	49	57	52	57	33	47	44	31	499	856
Engineering, general	42	36	29	30	29	26	55	54	49	64	414	922
Engineering, other	66	75	89	84	72	69	103	79	83	106	826	2859
TOTAL, NON-SCI/ENGINEERING(52) ...	13496	13361	13094	12889	12823	12586	12644	12654	12742	12803	129092	323298
TOTAL, ALL FIELDS	31020	31357	31111	31282	31337	31297	31895	32356	33480	34319	319454	802459

See footnotes at end of table.

Table 1. Science and engineering doctorates by subfield and sex: 1960-89--continued

	Year of doctorate													
Field of study	Total 1960-1964	Total 1965-1969	Total 1960-1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-1979
MALE														
TOTAL, SCIENCE/ENGINEERING	35433	60543	95976	16400	17373	17182	16842	16032	15805	15219	14567	13995	13913	157328
TOTAL, SCIENCES	29493	47467	76960	12970	13875	13695	13514	12905	12846	12436	11993	11623	11481	127338
PHYSICAL SCIENCES	9141	14135	23276	3666	3718	3404	3209	2902	2812	2617	2477	2364	2382	29551
Physics/astronomy	3466	6157	9623	1610	1682	1588	1533	1282	1230	1182	1086	1015	1035	13243
Acoustics	47	47	94	23	19	20	14	13	11	9	12	14	12	147
Astronomy(1)	-	34	34	45	54	59	60	52	52	71	56	60	52	561
Astronomy/astrophysics(1) ..	128	279	407	-	-	-	-	-	-	-	-	-	-	-
Astrophysics(1)	-	62	62	58	51	62	65	75	67	68	55	71	55	627
Atomic/molecular	396	612	1008	149	122	147	119	118	135	114	99	86	66	1155
Electron(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Electromagnetism(3)	106	123	229	18	18	11	13	8	8	12	9	10	6	113
Elementary particle	527	999	1526	248	265	192	218	135	120	124	129	132	114	1677
Fluids	85	184	269	20	20	28	28	19	21	19	14	12	13	194
Mechanics(4)	23	40	63	7	6	7	5	3	3	4	-	-	-	35
Nuclear(5)	678	883	1561	206	218	230	175	144	127	88	90	73	99	1450
Optics	37	64	101	30	25	31	33	23	32	48	30	33	45	330
Plasma	-	63	63	85	85	92	69	57	53	74	70	61	60	706
Polymer(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Solid state	798	1693	2491	392	428	383	388	330	303	269	246	226	226	3191
Theoretical physics(6)	257	-	257	-	-	-	-	-	-	-	-	-	-	-
Thermal(7)	30	89	119	16	17	17	13	16	9	4	7	11	7	117
Physics, general	131	449	580	156	160	148	198	171	158	168	163	143	177	1642
Physics, other	223	536	759	157	194	161	135	118	131	110	106	83	103	1298
Chemistry	5675	7978	13653	2056	2036	1816	1676	1620	1582	1435	1391	1349	1347	16308
Agricultural/food	178	226	404	50	51	16	8	11	8	11	6	6	9	176
Analytical	389	585	974	151	166	131	120	140	130	142	161	161	180	1482
Inorganic	522	925	1447	275	269	258	229	174	195	200	169	174	160	2103
Nuclear	127	132	259	32	32	20	23	29	20	24	18	11	13	222
Organic	2376	3277	5653	787	748	665	599	567	561	455	431	399	415	5627
Pharmaceutical	196	256	452	53	62	40	44	59	57	46	45	46	37	489
Physical	1624	2086	3710	509	463	418	404	344	341	300	298	268	273	3618
Polymer	-	-	-	-	-	-	14	33	37	40	53	53	62	292
Theoretical	97	173	270	58	56	57	48	44	37	42	33	39	47	461
Chemistry, general	95	179	274	78	91	121	124	175	152	120	123	136	102	1222
Chemistry, other	71	139	210	63	98	90	63	44	44	55	54	56	49	616
EARTH, ATMOS, & MARINE SCI	1361	2073	3434	483	523	576	597	581	595	579	630	560	584	5708
Applied geo, geo eng(8)	109	123	232	-	-	-	-	-	-	-	-	-	-	-
Applied geology(8)	-	26	26	17	27	41	22	31	22	22	18	14	18	232
Atmos/meteorol sci, gen(2) .	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Atmos/meteorol sci, other ..	-	-	-	-	-	-	-	-	-	19	40	32	41	132
Atmospheric dynamics	-	-	-	-	-	-	-	-	-	14	29	20	25	88
Atmospheric phys/chem	-	-	-	-	-	-	-	-	-	13	15	22	15	65
Environmental sciences(9) ..	-	-	-	-	-	21	50	47	69	51	47	38	46	369
Geochemistry(10)	-	38	38	39	50	34	42	42	46	46	50	46	47	442
Geology(11)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Structural geology(11)	64	126	190	12	27	23	20	15	15	21	21	24	26	204
Geomorph/glacial geology ...	46	65	111	17	23	19	27	21	30	26	22	23	12	220
Geophysics/seismology(12) ..	-	-	-	-	-	-	-	-	-	38	66	54	76	234
Geophysics(12)	126	189	315	66	65	75	66	76	90	31	-	-	-	469
Hydrology/water res(13)	14	50	64	20	28	13	30	16	18	15	23	31	20	214
Marine sciences(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marine sciences, other(14) .	-	-	-	-	-	-	-	-	-	-	8	22	30	60
Meteorology(15)	106	200	306	52	59	76	57	55	43	22	-	-	-	364
Mineral, petrol, geochem(10)	367	368	735	-	-	-	-	-	-	-	-	-	-	-
Minerology, petrology(10) ..	-	44	44	53	48	56	45	40	41	47	53	29	30	442
Oceanography	61	202	263	64	52	77	84	73	83	75	108	90	82	788
Paleontology	127	203	330	38	30	34	38	38	36	36	23	25	27	325
Stratigraphy, sediment	294	274	568	56	63	49	51	48	42	51	40	28	31	459
Geological sciences, gen(16)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Geological sciences, oth(16)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Earth sciences, general(16).	27	89	116	28	27	28	39	54	32	30	40	41	36	355
Earth sciences, other(16) ..	20	76	96	21	24	30	26	25	28	22	27	21	22	246
Physical sciences, other(2).	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MATHEMATICS	1967	4077	6044	1148	1142	1185	1113	1096	1038	890	811	718	650	9791
Algebra	246	615	861	173	181	145	117	107	105	87	71	72	63	1121
Analysis/funct analysis(17).	526	1006	1532	232	239	231	226	185	166	127	135	105	97	1743
Applied mathematics	252	553	805	138	119	116	112	132	95	103	104	96	99	1114
Computing theory	47	203	250	117	137	151	209	189	156	132	88	46	21	1246
Geometry	83	118	201	35	29	33	28	35	22	20	24	21	20	267
Logic	50	121	171	34	29	33	30	17	34	31	13	21	20	262
Number theory	75	83	158	24	28	30	28	21	23	24	27	17	16	238
Operations research	-	-	-	-	-	-	3	24	51	35	37	38	39	227
Probability/math stat (18) .	343	507	850	76	89	139	139	136	159	143	138	137	134	1290
Topology	251	509	760	133	112	123	99	102	88	66	63	52	52	890
Mathematics, general	58	199	257	89	93	101	88	109	99	82	77	77	68	883
Mathematics, other	36	163	199	97	86	83	34	39	40	40	34	36	21	510
COMPUTER/INFORMATION SCIENCES ..	-	-	-	-	-	-	-	-	-	-	26	110	183	319
Computer sciences	-	-	-	-	-	-	-	-	-	-	26	110	183	319
Information sci/systems(2) .	-	-	-	-	-	-	-	-	-	-	-	-	-	-

See footnotes at end of table.

Table 1. Science and engineering doctorates by subfield and sex: 1960-89--continued

Field of study	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1980-1989	Total 1960-1989
	Year of doctorate											
MALE												
TOTAL, SCIENCE/ENGINEERING	13640	13880	13747	13769	13810	13899	14167	14468	15162	15522	142064	395368
TOTAL, SCIENCES	11251	11451	11225	11112	11048	10931	11016	10999	11259	11359	111651	315949
PHYSICAL SCIENCES	2199	2318	2337	2431	2446	2452	2585	2686	2761	2634	24849	77676
Physics/astronomy	916	942	930	969	1001	978	1078	1117	1172	1160	10263	33129
Acoustics	21	11	11	13	21	7	13	17	14	15	143	384
Astronomy(1)	45	43	41	42	38	38	48	39	53	41	428	1023
Astronomy/astrophysics(1) ..	-	-	-	-	-	-	-	-	-	-	-	407
Astrophysics(1)	63	55	45	58	48	51	52	48	61	56	537	1226
Atomic/molecular	69	58	89	65	74	52	64	75	69	67	682	2845
Electron(2)	-	-	-	1	2	3	2	6	2	4	20	20
Electromagnetism(3)	-	-	-	-	-	-	-	-	-	-	-	342
Elementary particle	112	111	115	133	130	146	136	144	158	124	1309	4512
Fluids	15	11	11	13	10	15	4	21	17	13	130	593
Mechanics(4)	-	-	-	-	-	-	-	-	-	-	-	98
Nuclear(5)	67	60	47	84	64	79	81	70	82	73	707	3718
Optics	41	53	40	48	50	42	49	45	59	71	498	929
Plasma	57	63	66	70	70	52	58	67	61	57	621	1390
Polymer(2)	-	-	-	10	8	8	8	12	20	6	72	72
Solid state	187	233	216	201	240	229	251	263	217	274	2311	7993
Theoretical physics(6)	-	-	-	-	-	-	-	-	-	-	-	257
Thermal(7)	5	7	-	-	-	-	-	-	-	-	12	248
Physics, general	156	154	154	141	158	166	204	207	246	251	1837	4059
Physics, other	78	83	95	90	88	90	108	103	113	108	956	3013
Chemistry	1283	1376	1407	1462	1445	1474	1507	1569	1589	1474	14586	44547
Agricultural/food	-	-	-	-	-	-	-	-	-	-	-	580
Analytical	162	199	163	218	196	223	211	242	241	226	2081	4537
Inorganic	157	153	184	177	183	204	198	181	185	183	1805	5355
Nuclear	13	12	17	10	15	6	16	13	7	6	115	596
Organic	410	433	441	433	452	415	415	423	442	403	4267	15547
Pharmaceutical	37	47	44	62	41	45	41	49	54	43	463	1404
Physical	226	224	275	250	266	234	222	243	247	222	2409	9737
Polymer	56	57	45	50	51	70	60	83	69	63	604	896
Theoretical	40	27	26	41	32	41	35	29	41	37	349	1080
Chemistry, general	130	168	146	154	143	168	237	244	237	227	1854	3350
Chemistry, other	52	56	66	67	66	68	72	62	66	64	639	1465
EARTH, ATMOS, & MARINE SCI	564	527	554	540	508	506	489	514	583	590	5375	14517
Applied geo, geo eng(8)	-	-	-	-	-	-	-	-	-	-	-	232
Applied geology(8)	27	21	23	8	5	8	3	4	6	5	110	368
Atmos/meteorol sci, gen(2) .	-	-	-	15	4	10	7	12	13	11	72	72
Atmos/meteorol sci, other ..	47	32	25	24	9	10	6	10	9	12	184	316
Atmospheric dynamics	17	26	19	15	23	20	14	14	23	13	184	272
Atmospheric phys/chem	18	14	17	20	11	15	18	20	19	13	165	230
Environmental sciences(9) ..	34	43	42	39	36	36	27	23	42	48	370	739
Geochemistry(10)	45	43	43	39	36	37	30	22	39	26	360	840
Geology(11)	-	-	-	88	102	90	95	89	108	130	702	702
Structural geology(11)	19	26	19	-	-	-	-	-	-	-	64	458
Geomorph/glacial geology ...	13	11	15	8	8	12	9	16	6	7	105	436
Geophysics/seismology(12) ..	69	66	75	67	61	79	71	64	75	77	704	938
Geophysics(12)	-	-	-	-	-	-	-	-	-	-	-	784
Hydrology/water res(13)	24	20	21	19	16	16	15	13	19	22	185	463
Marine sciences(2)	-	-	-	15	15	22	19	35	19	20	145	145
Marine sciences, other(14) .	20	28	32	-	-	-	-	-	-	-	80	140
Meteorology(15)	-	-	-	17	26	21	25	17	28	27	161	831
Mineral, petrol, geochem(10)	-	-	-	-	-	-	-	-	-	-	-	735
Mineralogy, petrology(10) ..	43	25	33	18	22	18	13	16	16	31	235	721
Oceanography	75	63	78	69	57	47	70	60	64	67	650	1701
Paleontology	16	18	17	15	29	18	9	16	21	13	172	827
Stratigraphy, sediment	35	35	39	21	14	18	14	20	22	18	236	1263
Geological sciences, gen(16)	-	-	-	13	7	6	11	15	6	17	75	75
Geological sciences, oth(16)	-	-	-	19	21	8	8	24	25	17	122	122
Earth sciences, general(16).	44	42	33	-	-	-	-	-	-	-	119	590
Earth sciences, other(16) ..	18	14	23	-	-	-	-	-	-	-	55	397
Physical sciences, other(2).	-	-	-	11	6	15	25	24	23	16	120	120
MATHEMATICS	649	616	624	588	583	582	608	615	628	705	6198	22033
Algebra	63	42	48	47	52	49	28	47	44	40	460	2442
Analysis/funct analysis(17).	83	97	83	68	58	73	70	80	61	81	754	4029
Applied mathematics	93	94	98	104	92	97	115	102	125	130	1050	2969
Computing theory	13	14	11	10	12	14	10	10	9	11	114	1610
Geometry	33	28	30	38	21	33	37	27	40	40	327	795
Logic	22	17	17	19	24	26	20	16	18	7	186	619
Number theory	25	23	24	15	23	16	19	13	21	18	197	593
Operations research	36	32	31	15	26	16	25	21	26	18	246	473
Probability/math stat (18) .	125	131	136	124	150	118	114	107	121	129	1255	3395
Topology	50	44	40	35	32	31	28	38	24	29	351	2001
Mathematics, general	71	69	77	78	67	73	105	115	114	163	932	2072
Mathematics, other	35	25	29	35	26	36	37	39	25	39	326	1035
COMPUTER/INFORMATION SCIENCES ..	197	206	200	250	258	277	351	385	459	505	3088	3407
Computer sciences	197	206	200	231	232	229	316	333	403	450	2797	3116
Information sci/systems(2) .	-	-	-	19	26	48	35	52	56	55	291	291

See footnotes at end of table.

Table 1. Science and engineering doctorates by subfield and sex: 1960-89--continued

	Year of doctorate													
Field of study	Total 1960-1964	Total 1965-1969	Total 1960-1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-1979
MALE														
AGRICULTURAL & BIOLOGICAL SCI	8479	13532	22011	3627	3897	3781	3714	3524	3553	3508	3423	3411	3470	35908
Agricultural sciences	2275	3114	5389	781	874	824	824	779	862	738	726	788	775	7971
Agric business & mgmt (19)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Agronomy	709	851	1560	196	186	138	151	130	132	143	120	129	129	1454
Animal breeding/genetics(20)	565	639	1204	123	92	67	34	17	21	16	24	21	25	440
Animal nutrition(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Animal sci/nutrition(21)	-	-	-	-	-	66	109	127	121	111	97	93	104	828
Dairy science(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Poultry science(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Animal sciences, other(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fish/wildlife(22)	98	127	225	45	61	48	46	52	62	53	64	59	64	554
Fisheries science(22)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wildlife management(22)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wildlife/range mgmt(22)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Food sciences(23)	-	38	38	33	66	73	82	82	94	70	82	92	85	759
Food engineering(23)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Food sciences, other(23)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Forestry science(24)	164	301	465	75	84	74	79	74	84	79	63	85	82	779
Forest biology(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Forest engineering(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Forest management(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wood science(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Renewable natrl resrces(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Forestry&relatd sci, oth(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Horticulture science	244	332	576	65	73	82	49	42	75	47	56	64	60	613
Plant breeding/genetics(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Plant pathology(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phytopathology(25)	377	465	842	101	106	88	94	86	95	78	71	83	69	871
Plant protectn-pest mgmt(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Plant sciences, other(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Soil sciences(26)	-	40	40	40	54	83	100	89	97	67	71	92	68	761
Soil chem/microbio(26)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Soil sciences, other(26)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Agriculture, general	9	35	44	4	2	5	4	5	8	8	5	4	7	52
Agriculture, other	109	286	395	99	150	100	76	75	73	66	73	66	82	860
Biological sciences	6204	10418	16622	2846	3023	2957	2890	2745	2691	2770	2697	2623	2695	27937
Anatomy	193	363	556	98	128	116	96	98	94	98	93	102	103	1026
Biochemistry	1261	2001	3262	486	537	480	506	450	473	476	474	461	445	4788
Biometrics/biostat	56	97	153	30	36	23	31	29	26	38	39	36	33	321
Biophysics	143	409	552	96	92	98	107	108	100	103	125	88	119	1036
Botany, other(27)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Botany(27)	498	693	1191	146	171	164	160	149	122	143	126	102	103	1386
Cell biology(28)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cytology(28)	50	119	169	39	29	18	20	26	31	32	25	24	28	272
Ecology	178	281	459	106	107	122	118	133	123	121	144	150	148	1272
Embryology	36	112	148	28	26	27	19	15	18	12	12	11	7	175
Endocrinology(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Entomology	471	694	1165	170	206	186	168	162	162	137	135	134	151	1611
Human/animal genetics(29)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Plant genetics(29)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Genetics(29)	366	534	900	116	125	121	104	95	107	99	96	82	89	1034
Human/animal pathology(30)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Plant pathology(30)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pathology(30)	103	203	306	40	63	79	73	73	59	71	83	61	65	667
Human/animal pharmacol	311	549	860	133	153	165	133	143	140	180	155	170	185	1557
Human/animal physiol(31)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Animal physiology(31)	345	1041	1386	303	303	291	290	259	272	232	265	257	238	2710
Animal/plant physiol(31)	275	-	275	-	-	-	-	-	-	-	-	-	-	-
Plant physiology(31)	144	357	501	88	79	68	72	66	56	48	32	38	44	591
Hydrobiology	33	58	91	28	24	22	10	17	6	12	13	2	7	141
Immunology	-	-	-	-	-	12	38	52	50	63	68	65	86	434
Microbiology(32)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bacteriology(32)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Microbiology/bacteriol(32)	816	1312	2128	325	334	307	290	276	265	269	226	248	231	2771
Molecular biology	-	72	72	70	85	103	89	95	102	105	99	118	107	973
Neurosciences	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nutritional sciences(33)	20	-	20	-	-	-	-	-	-	41	37	34	39	151
Parasitology	-	-	-	-	-	-	14	22	15	17	16	12	16	112
Toxicology(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zoology, other(34)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zoology(34)	805	1126	1931	310	299	312	264	217	208	215	204	183	190	2402
Biological sci, general	29	155	184	96	117	114	148	135	132	133	124	127	137	1263
Biological sci, other	71	242	313	138	109	129	140	125	130	125	106	118	124	1244

See footnotes at end of table.

Table 1. Science and engineering doctorates by subfield and sex: 1960-89--continued

	Year of doctorate											
Field of study	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1980-1989	Total 1960-1989
MALE												
AGRICULTURAL & BIOLOGICAL SCI ..	3565	3565	3552	3390	3529	3494	3353	3281	3434	3431	34594	92513
Agricultural sciences	815	848	800	882	864	940	826	805	829	859	8468	21828
Agric business & mgmt (19) .	-	-	-	-	-	-	-	-	-	1	1	1
Agronomy	141	162	143	138	125	139	144	126	122	120	1360	4374
Animal breeding/genetics(20)	23	19	19	21	23	20	21	20	25	20	211	1855
Animal nutrition(21)	-	-	-	50	64	65	52	69	42	51	393	393
Animal sci/nutrition(21) ...	106	132	116	-	-	-	-	-	-	-	354	1182
Dairy science(21)	-	-	-	-	-	-	-	-	11	15	26	26
Poultry science(21)	-	-	-	-	-	-	-	-	8	9	17	17
Animal sciences, other(21) .	-	-	-	83	75	82	75	60	73	70	518	518
Fish/wildlife(22)	66	57	58	-	-	-	-	-	-	-	181	960
Fisheries science(22)	-	-	-	30	40	31	23	32	34	29	219	219
Wildlife management(22)	-	-	-	30	28	37	18	22	3	-	138	138
Wildlife/range mgmt(22)	-	-	-	-	-	-	-	-	28	42	70	70
Food sciences(23)	78	76	80	103	81	103	81	83	13	1	699	1496
Food engineering(23)	-	-	-	-	-	-	-	-	5	10	15	15
Food sciences, other(23) ...	-	-	-	-	-	-	-	-	83	94	177	177
Forestry science(24)	74	89	74	86	89	90	71	95	13	-	681	1925
Forest biology(24)	-	-	-	-	-	-	-	-	18	19	37	37
Forest engineering(24)	-	-	-	-	-	-	-	-	3	1	4	4
Forest management(24)	-	-	-	-	-	-	-	-	16	19	35	35
Wood science(24)	-	-	-	-	-	-	-	-	7	16	23	23
Renewable natrl resrces(24)	-	-	-	-	-	-	-	-	7	11	18	18
Forestry&relatd sci, oth(24)	-	-	-	-	-	-	-	-	29	49	78	78
Horticulture science	65	68	69	63	45	65	48	55	45	56	579	1768
Plant breeding/genetics(25).	-	-	-	58	70	74	65	59	71	51	448	448
Plant pathology(25)	-	-	-	73	49	65	71	54	34	39	385	385
Phytopathology(25)	104	78	87	-	-	-	-	-	-	-	269	1982
Plant protectn-pest mgmt(25)	-	-	-	-	-	-	-	-	1	6	7	7
Plant sciences, other(25) ..	-	-	-	15	18	18	17	17	20	11	116	116
Soil sciences(26)	73	83	68	78	95	90	93	67	17	-	664	1465
Soil chem/microbio(26)	-	-	-	-	-	-	-	-	26	21	47	47
Soil sciences, other(26) ...	-	-	-	-	-	-	-	-	51	68	119	119
Agriculture, general	3	4	4	7	1	5	4	5	6	5	44	140
Agriculture, other	82	80	82	47	61	56	43	41	18	25	535	1790
Biological sciences	2750	2717	2752	2508	2665	2554	2527	2476	2605	2572	26126	70685
Anatomy	102	108	101	70	66	90	59	50	56	53	755	2337
Biochemistry	485	456	483	452	415	397	382	374	409	404	4257	12307
Biometrics/biostat	29	36	41	23	31	28	20	23	32	26	289	763
Biophysics	90	89	78	72	69	62	59	64	76	66	725	2313
Botany, other(27)	-	-	-	77	88	86	79	70	71	65	536	536
Botany(27)	106	105	104	-	-	-	-	-	-	-	315	2892
Cell biology(28)	-	-	-	77	75	61	86	72	63	75	509	509
Cytology(28)	31	33	23	-	-	-	-	-	-	-	87	528
Ecology	133	146	131	146	157	148	143	120	108	125	1357	3088
Embryology	11	10	7	6	7	10	2	6	4	6	69	392
Endocrinology(2)	-	-	-	14	19	13	11	8	11	11	87	87
Entomology	135	130	147	121	127	139	148	98	107	116	1268	4044
Human/animal genetics(29) ..	-	-	-	52	43	56	50	59	61	55	376	376
Plant genetics(29)	-	-	-	14	16	23	10	19	20	15	117	117
Genetics(29)	102	95	111	-	-	-	-	-	-	-	308	2242
Human/animal pathology(30) .	-	-	-	73	65	75	58	79	69	63	482	482
Plant pathology(30)	-	-	-	21	25	30	23	23	21	14	157	157
Pathology(30)	80	79	71	-	-	-	-	-	-	-	230	1203
Human/animal pharmacol	197	211	203	147	177	159	164	147	158	140	1703	4120
Human/animal physiol(31) ...	-	-	-	178	178	174	163	170	136	167	1166	1166
Animal physiology(31)	272	247	233	-	-	-	-	-	-	-	752	4848
Animal/plant physiol(31) ...	-	-	-	-	-	-	-	-	-	-	-	275
Plant physiology(31)	43	57	43	43	47	46	34	47	51	32	443	1535
Hydrobiology	-	-	-	-	-	-	-	-	-	-	-	232
Immunology	84	88	93	88	81	70	95	83	88	91	861	1295
Microbiology(32)	-	-	-	192	225	176	208	198	213	217	1429	1429
Bacteriology(32)	-	-	-	6	8	13	10	7	5	9	58	58
Microbiology/bacteriol(32) .	247	252	233	-	-	-	-	-	-	-	732	5631
Molecular biology	123	118	142	149	172	182	183	187	234	255	1745	2790
Neurosciences	-	-	79	85	102	98	81	105	103	118	771	771
Nutritional sciences(33) ...	28	40	49	39	41	41	36	44	38	38	394	565
Parasitology	15	13	12	9	26	19	22	11	12	15	154	266
Toxicology(2)	-	-	-	44	72	75	71	81	78	72	493	493
Zoology, other(34)	-	-	-	129	116	101	111	95	124	98	774	774
Zoology(34)	180	151	154	-	-	-	-	-	-	-	485	4818
Biological sci, general	147	145	134	114	134	128	140	148	160	157	1407	2854
Biological sci, other	110	108	80	67	83	54	79	88	97	69	835	2392

See footnotes at end of table.

Table 1. Science and engineering doctorates by subfield and sex: 1960-89--continued

	Year of doctorate													
Field of study	Total 1960-1964	Total 1965-1969	Total 1960-1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-1979
MALE														
SOCIAL SCIENCES	5015	8480	13495	2600	2980	3079	3140	3005	2970	2905	2724	2532	2381	28316
Agricultural economics	-	92	92	114	168	159	172	177	159	158	137	154	143	1541
Anthropology	304	493	797	158	174	188	229	254	248	271	249	236	215	2222
Area studies	15	70	85	65	66	27	27	26	28	22	15	16	15	307
Criminology(35)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Demography(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Econometrics	74	124	198	26	26	32	31	18	25	29	27	21	21	256
Economics	1995	3046	5041	775	739	804	855	760	784	763	740	687	676	7583
Geography	272	385	657	134	142	165	198	182	177	139	128	127	106	1498
History of science(36)	-	-	-	-	28	36	20	24	21	22	24	18	22	215
International relations	243	395	638	96	132	102	102	125	92	111	85	82	63	990
Linguistics	200	370	570	103	134	112	142	98	124	82	117	110	78	1100
Pol sci/government(37)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Political science(37)	-	-	-	-	-	-	-	-	1	522	512	485	427	1947
Pol sci, public admin(37) ..	1042	1822	2864	478	592	715	687	660	627	32	-	-	-	3791
Public policy studies(2) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sociology	770	1323	2093	412	471	501	445	460	470	511	488	386	400	4544
Statistics	-	125	125	113	129	80	59	35	37	30	30	32	19	564
Urban studies(38)	-	-	-	-	33	45	46	65	68	78	66	53	76	530
Social sciences, general ...	23	35	58	20	13	18	33	24	22	25	21	23	16	215
Social sciences, other	77	200	277	106	133	95	94	97	87	110	85	102	104	1013
PSYCHOLOGY	3530	5170	8700	1446	1615	1670	1741	1797	1878	1937	1902	1928	1831	17745
Clinical	1208	1625	2833	398	455	516	526	538	550	608	595	643	645	5474
Cognitive(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Comparative(39)	40	58	98	19	14	17	21	19	15	19	14	11	11	160
Counseling(40)	236	312	548	86	110	107	140	138	162	176	179	186	177	1461
Developmental(41)	56	138	194	49	56	66	72	79	82	88	84	105	86	767
Educational	195	199	394	66	72	82	80	83	90	79	76	90	90	808
Exper, compar, physiol(39) .	391	7	398	-	-	-	-	-	-	-	-	-	-	-
Experimental(39)	458	1171	1629	296	315	280	248	270	263	269	239	214	211	2605
Indust/organizational(42) ..	183	235	418	69	64	53	70	73	53	63	68	59	67	639
Physiological(39)	101	341	442	96	99	95	89	81	93	95	100	90	75	913
Quantitative(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Personality	96	129	225	40	32	29	34	44	47	31	34	28	19	338
Psychometrics	83	79	162	16	31	22	19	16	16	26	15	11	19	191
School	54	84	138	32	51	57	68	51	61	77	80	67	65	609
Social	318	480	798	123	129	137	160	143	167	148	133	128	126	1394
Psychology, general	72	205	277	95	99	95	114	177	156	141	164	194	120	1355
Psychology, other	39	107	146	61	88	114	100	85	123	117	121	102	120	1031
TOTAL, ENGINEERING	5940	13076	19016	3430	3498	3487	3328	3127	2959	2783	2574	2372	2432	29990
Aeronaut/astronautical(43) .	247	695	942	202	195	181	165	145	139	122	112	102	81	1444
Agricultural	101	182	283	56	61	67	74	52	55	37	33	43	66	544
Bioengineering/biomed(44) ..	-	37	37	45	71	74	70	61	71	71	75	79	68	685
Ceramic	95	198	293	46	44	30	25	24	22	24	27	24	23	289
Chemical	1121	1831	2952	443	388	383	404	380	366	307	297	256	279	3503
Civil	594	1323	1917	310	378	361	351	321	287	310	262	230	234	3044
Communications(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Computer	-	-	-	-	-	-	-	-	95	111	114	71	75	466
Electrical/electronics(45) .	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Electrical(45)	1229	2701	3930	705	742	686	667	591	527	505	452	399	443	5717
Electronics(45)	329	605	934	149	116	124	113	84	76	80	80	52	82	956
Engineering mechanics	444	1050	1494	234	213	208	173	165	160	112	99	94	84	1542
Engineering physics(46)	231	547	778	40	38	38	33	24	19	19	20	15	16	262
Engineering science(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Environmental health eng(47)	114	249	363	55	48	74	75	66	69	72	66	65	64	654
Fuel tech/petro eng(8)	-	23	23	11	15	6	10	13	9	3	5	2	4	78
Industrial	106	344	450	117	132	142	107	91	90	65	68	49	77	938
Materials science	-	22	22	35	52	88	129	116	127	111	119	122	118	1017
Mechanical	683	1606	2289	399	398	406	361	372	323	301	267	280	277	3384
Metallurgical(48)	486	949	1435	221	209	173	138	137	118	109	92	96	87	1380
Mining/mineral(49)	-	10	10	10	15	16	12	2	7	6	2	7	4	81
Naval arch/marine engin(2) .	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nuclear(46)	-	120	120	117	120	116	128	110	86	132	103	103	92	1107
Ocean(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Operations research	-	-	-	-	1	61	101	127	89	79	72	82	61	673
Petroleum(50)	-	-	-	-	-	-	6	16	16	17	17	19	23	114
Polymer(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Systems(51)	-	-	-	-	-	-	-	-	79	68	71	62	70	350
Engineering, general	17	106	123	38	34	33	37	54	38	41	31	43	31	380
Engineering, other	143	478	621	197	228	220	149	176	91	81	90	77	73	1382
TOTAL, NON-SCI/ENGINEERING(52) ...	16908	30220	47128	9127	9898	10572	10828	10562	9945	10043	9291	8558	8389	97213
TOTAL, ALL FIELDS	52341	90763	143104	25527	27271	27754	27670	26594	25750	25262	23858	22553	22302	254541

See footnotes at end of table.

Table 1. Science and engineering doctorates by subfield and sex: 1960-89--continued

	Year of doctorate											
Field of study	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1980-1989	Total 1960-1989
MALE												
SOCIAL SCIENCES	2290	2334	2237	2163	2098	2044	2104	2044	2006	2085	21405	63216
Agricultural economics	148	155	159	139	129	126	142	113	124	139	1374	3007
Anthropology	196	217	195	198	164	172	184	171	155	176	1828	4847
Area studies	17	15	12	9	21	14	22	12	11	12	145	537
Criminology(35)	24	26	19	42	31	28	17	22	28	24	261	261
Demography(2)	-	-	-	14	11	16	9	19	8	12	89	89
Econometrics	20	16	22	17	23	25	23	21	23	24	214	668
Economics	643	708	639	663	647	663	672	662	663	701	6661	19285
Geography	114	89	87	84	93	91	81	85	96	80	900	3055
History of science(36)	11	21	19	6	13	21	14	15	12	10	142	357
International relations	69	75	66	61	82	62	61	67	63	64	670	2298
Linguistics	107	98	101	78	78	85	93	93	83	82	898	2568
Pol sci/government(37)	-	-	-	314	322	299	297	293	296	323	2144	2144
Political science(37)	403	349	353	-	-	-	-	-	-	-	1105	3052
Pol sci, public admin(37) ..	-	-	-	-	-	-	-	-	-	-	-	6655
Public policy studies(2) ...	-	-	-	43	34	46	47	53	48	49	320	320
Sociology	370	363	354	309	289	227	276	255	211	213	2867	9504
Statistics	24	33	38	42	28	46	48	36	38	49	382	1071
Urban studies(38)	61	77	68	52	60	54	34	50	55	37	548	1078
Social sciences, general ...	19	17	20	14	11	9	23	24	15	17	169	442
Social sciences, other	64	75	85	78	62	60	61	53	77	73	688	1978
PSYCHOLOGY	1787	1885	1721	1750	1626	1576	1526	1474	1388	1409	16142	42587
Clinical	621	702	651	647	597	590	570	547	482	539	5946	14253
Cognitive(2)	-	-	-	34	40	53	37	39	49	46	298	298
Comparative(39)	6	8	6	7	4	9	8	3	3	7	61	319
Counseling(40)	159	191	192	233	234	216	212	232	221	215	2105	4114
Developmental(41)	86	80	67	71	51	63	67	61	45	32	623	1584
Educational	76	103	65	79	100	49	48	39	38	45	642	1844
Exper, compar, physiol(39) .	-	-	-	-	-	-	-	-	-	-	-	398
Experimental(39)	209	190	143	128	99	100	83	92	74	76	1194	5428
Indust/organizational(42) ..	50	65	60	60	66	73	58	58	64	55	609	1666
Physiological(39)	84	68	67	67	53	44	43	37	40	29	532	1887
Quantitative(2)	-	-	-	10	12	12	15	6	7	5	67	67
Personality	25	23	19	23	13	12	7	14	10	11	157	720
Psychometrics	11	17	7	2	3	7	4	6	5	3	65	418
School	93	60	80	49	39	38	57	40	49	38	543	1290
Social	112	104	94	88	75	73	62	61	65	60	794	2986
Psychology, general	117	146	137	159	133	140	159	169	168	173	1501	3133
Psychology, other	138	128	133	93	107	97	96	70	68	75	1005	2182
TOTAL, ENGINEERING	2389	2429	2522	2657	2762	2968	3151	3469	3903	4163	30413	79419
Aeronaut/astronautical(43) .	80	97	85	104	117	119	117	132	141	169	1161	3547
Agricultural	67	62	46	57	73	57	51	71	67	96	647	1474
Bioengineering/biomed(44) ..	65	61	53	66	61	58	58	60	96	89	667	1389
Ceramic	22	23	19	21	23	19	22	38	27	31	245	827
Chemical	271	285	289	327	336	405	423	471	565	550	3922	10377
Civil	234	281	296	342	332	340	368	424	464	453	3534	8495
Communications(2)	-	-	-	25	11	28	23	26	21	24	158	158
Computer	57	63	69	77	55	50	72	60	93	105	701	1167
Electrical/electronics(45) .	-	-	-	430	573	602	673	661	847	939	4725	4725
Electrical(45)	394	396	453	65	6	1	-	-	-	-	1315	10962
Electronics(45)	72	68	72	15	-	-	-	-	-	-	227	2117
Engineering mechanics	88	77	98	66	82	85	90	110	102	102	900	3936
Engineering physics(46)	18	20	12	10	8	11	13	12	9	16	129	1169
Engineering science(2)	-	-	-	29	28	31	27	26	29	24	194	194
Environmental health eng(47)	61	67	55	42	51	31	40	35	38	32	452	1469
Fuel tech/petro eng(8)	-	-	-	-	-	-	-	-	-	-	-	101
Industrial	70	60	73	80	68	86	87	107	108	143	882	2270
Materials science	138	102	134	135	151	165	169	202	227	223	1646	2685
Mechanical	289	277	322	305	330	402	428	529	584	626	4092	9765
Metallurgical(48)	99	92	85	82	71	87	90	107	87	81	881	3696
Mining/mineral(49)	4	8	6	21	16	16	20	26	16	29	162	253
Naval arch/marine engin(2) .	-	-	-	4	5	8	9	7	9	8	50	50
Nuclear(46)	111	124	114	98	114	93	92	82	100	79	1007	2234
Ocean(2)	-	-	-	12	11	25	14	23	21	18	124	124
Operations research	58	73	53	39	50	46	43	44	40	54	500	1173
Petroleum(50)	31	21	25	22	17	24	17	23	31	28	239	353
Polymer(2)	-	-	-	20	29	34	30	30	25	53	221	221
Systems(51)	58	64	47	54	51	53	31	44	37	28	467	817
Engineering, general	37	35	28	29	29	26	50	46	47	62	389	892
Engineering, other	65	73	88	80	64	66	94	73	72	101	776	2779
TOTAL, NON-SCI/ENGINEERING(52) ...	7973	7585	7271	6980	6828	6653	6424	6463	6506	6287	68970	213311
TOTAL, ALL FIELDS	21613	21465	21018	20749	20638	20552	20591	20931	21668	21809	211034	608679

See footnotes at end of table.

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Table 1. Science and engineering doctorates by subfield and sex: 1960-89--continued

	Year of doctorate													
Field of study	Total 1960-1964	Total 1965-1969	Total 1960-1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-1979
FEMALE														
TOTAL, SCIENCE/ENGINEERING	2796	5577	8373	1644	1990	2142	2510	2662	2905	3049	3156	3388	3676	27122
TOTAL, SCIENCES	2765	5531	8296	1628	1974	2120	2464	2628	2853	2994	3082	3335	3614	26692
PHYSICAL SCIENCES	384	762	1146	227	231	249	235	234	264	244	244	247	292	2467
Physics/astronomy	54	159	213	45	56	46	56	57	70	55	64	52	73	574
Acoustics	-	-	-	-	-	-	1	-	1	-	-	-	1	3
Astronomy(1)	-	2	2	3	5	4	4	5	8	7	7	4	6	53
Astronomy/astrophysics(1) ..	6	22	28	-	-	-	-	-	-	-	-	-	-	-
Astrophysics(1)	-	5	5	5	3	4	2	1	4	4	2	3	2	30
Atomic/molecular	6	15	21	3	2	3	3	4	5	2	6	2	6	36
Electron(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Electromagnetism(3)	-	3	3	-	-	-	-	-	2	-	-	-	-	2
Elementary particle	8	27	35	8	12	6	4	11	6	6	9	3	7	72
Fluids	4	4	8	1	1	-	-	1	1	1	-	1	1	7
Mechanics(4)	-	-	-	-	-	-	1	1	-	-	-	-	-	2
Nuclear(5)	8	17	25	6	8	4	7	1	3	8	4	4	4	49
Optics	-	2	2	-	-	-	-	1	1	2	1	-	1	6
Plasma	-	-	-	-	1	1	4	-	-	1	2	7	2	18
Polymer(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Solid state	9	30	39	11	14	10	12	19	18	13	12	17	17	143
Theoretical physics(6)	3	-	3	-	-	-	-	-	-	-	-	-	-	-
Thermal(7)	1	3	4	1	-	1	3	-	-	-	-	-	-	5
Physics, general	5	13	18	4	4	6	8	9	15	7	10	8	17	88
Physics, other	4	16	20	3	6	7	7	4	6	4	11	3	9	60
Chemistry	330	603	933	182	175	203	179	177	194	189	180	195	219	1893
Agricultural/food	10	14	24	12	7	6	1	2	-	3	-	2	2	35
Analytical	31	38	69	9	8	16	8	7	12	10	13	17	27	127
Inorganic	39	89	128	28	28	31	33	27	34	26	29	27	35	298
Nuclear	8	5	13	2	4	2	1	2	1	1	6	2	1	22
Organic	120	213	333	56	62	49	46	48	44	42	48	55	54	504
Pharmaceutical	7	11	18	5	4	8	6	6	9	9	5	5	6	63
Physical	92	178	270	49	39	54	53	45	52	55	41	42	53	483
Polymer	-	-	-	-	-	-	-	2	3	2	2	4	5	18
Theoretical	5	19	24	6	9	10	5	7	9	6	5	7	3	67
Chemistry, general	12	19	31	9	11	12	16	22	17	24	23	25	24	183
Chemistry, other	6	17	23	6	3	15	10	9	13	11	8	9	9	93
EARTH, ATMOS, & MARINE SCI	19	50	69	15	13	22	27	34	30	62	59	61	58	381
Applied geo, geo eng(8)	1	-	1	-	-	-	-	-	-	-	-	-	-	-
Applied geology(8)	-	1	1	-	-	-	-	-	-	1	2	1	1	5
Atmos/meteorol sci, gen(2) .	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Atmos/meteorol sci, other ..	-	-	-	-	-	-	-	-	-	4	6	2	1	13
Atmospheric dynamics	-	-	-	-	-	-	-	-	-	-	3	1	1	5
Atmospheric phys/chem	-	-	-	-	-	-	-	-	-	3	-	-	1	4
Environmental sciences(9) ..	-	-	-	-	-	1	5	6	8	10	7	7	7	51
Geochemistry(10)	-	3	3	1	3	3	-	4	3	3	7	5	10	39
Geology(11)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Structural geology(11)	-	4	4	-	1	1	1	-	1	1	1	4	2	12
Geomorph/glacial geology ...	1	3	4	-	-	-	-	2	-	3	-	1	2	8
Geophysics/seismology(12) ..	-	-	-	-	-	-	-	-	-	2	7	6	5	20
Geophysics(12)	-	1	1	1	1	3	1	4	2	2	-	-	-	14
Hydrology/water res(13)	-	1	1	-	-	-	-	1	-	-	-	-	-	1
Marine sciences(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marine sciences, other(14) .	-	-	-	-	-	-	-	-	-	-	1	6	1	8
Meteorology(15)	1	3	4	3	-	2	1	2	2	1	-	-	-	11
Mineral, petrol, geochem(10)	9	11	20	-	-	-	-	-	-	-	-	-	-	-
Minerology, petrology(10) ..	-	6	6	4	-	5	2	1	2	1	7	5	3	30
Oceanography	-	5	5	2	1	1	4	8	3	14	5	8	9	55
Paleontology	5	4	9	2	2	1	6	3	5	7	3	6	9	44
Stratigraphy, sediment	2	2	4	-	4	2	4	-	1	6	2	4	3	26
Geological sciences, gen(16)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Geological sciences, oth(16)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Earth sciences, general(16).	-	5	5	1	-	1	2	1	-	3	4	4	1	17
Earth sciences, other(16) ..	-	1	1	1	1	2	1	2	3	1	4	1	2	18
Physical sciences, other(2).	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MATHEMATICS	115	248	363	77	96	96	119	115	109	113	122	120	119	1086
Algebra	24	64	88	18	19	22	25	18	21	29	17	15	25	209
Analysis/funct analysis(17).	30	54	84	12	22	10	18	23	14	14	18	13	14	158
Applied mathematics	6	20	26	9	3	3	7	4	6	2	9	12	12	67
Computing theory	1	4	5	2	3	12	16	14	10	16	13	9	4	99
Geometry	3	11	14	5	6	2	4	3	4	3	2	1	5	35
Logic	3	9	12	2	3	6	3	2	4	3	4	3	1	31
Number theory	8	15	23	3	5	6	3	2	4	2	5	1	1	32
Operations research	-	-	-	-	-	-	-	-	4	1	5	5	4	19
Probability/math stat (18) .	24	20	44	9	8	12	18	12	15	22	21	31	31	179
Topology	8	22	30	10	9	7	12	15	6	6	7	4	9	85
Mathematics, general	3	16	19	6	15	11	6	13	15	12	11	15	12	116
Mathematics, other	5	13	18	1	3	5	7	9	6	3	10	11	1	56
COMPUTER/INFORMATION SCIENCES ..	-	-	-	-	-	-	1	-	-	-	5	11	27	44
Computer sciences	-	-	-	-	-	-	1	-	-	-	5	11	27	44
Information sci/systems(2) .	-	-	-	-	-	-	-	-	-	-	-	-	-	-

See footnotes at end of table.

Table 1. Science and engineering doctorates by subfield and sex: 1960-89--continued

Field of study	Year of doctorate											
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1980-1989	Total 1960-1989
FEMALE												
TOTAL, SCIENCE/ENGINEERING	3884	4116	4270	4624	4704	4812	5084	5234	5576	5994	48298	83793
TOTAL, SCIENCES	3794	4017	4146	4500	4553	4614	4859	4992	5290	5621	46386	81374
PHYSICAL SCIENCES	322	309	357	371	399	464	505	526	557	615	4425	8038
Physics/astronomy	67	73	84	74	79	102	109	120	130	118	956	1743
Acoustics	2	2	-	1	-	3	2	-	2	-	12	15
Astronomy(1)	7	7	11	8	4	5	4	7	13	8	74	129
Astronomy/astrophysics(1)	-	-	-	-	-	-	-	-	-	-	-	28
Astrophysics(1)	6	4	5	7	8	6	5	6	3	8	58	93
Atomic/molecular	-	8	7	6	3	6	6	4	8	8	56	113
Electron(2)	-	-	-	-	-	1	-	-	-	-	1	1
Electromagnetism(3)	-	-	-	-	-	-	-	-	-	-	-	5
Elementary particle	5	8	4	3	8	8	11	15	16	10	88	195
Fluids	-	3	2	2	1	1	2	-	-	1	12	27
Mechanics(4)	-	-	-	-	-	-	-	-	-	-	-	2
Nuclear(5)	6	3	6	6	8	7	8	4	6	8	62	136
Optics	2	1	2	2	3	9	9	5	6	7	46	54
Plasma	2	2	3	2	3	3	3	5	4	4	31	49
Polymer(2)	-	-	-	-	-	3	3	3	-	1	10	10
Solid state	14	20	19	21	18	19	29	24	35	23	222	404
Theoretical physics(6)	-	-	-	-	-	-	-	-	-	-	-	3
Thermal(7)	-	-	-	-	-	-	-	-	-	-	-	9
Physics, general	9	10	13	9	12	10	18	31	25	20	157	263
Physics, other	14	5	12	7	11	21	9	16	12	20	127	207
Chemistry	255	236	273	297	320	362	396	406	427	497	3469	6295
Agricultural/food	-	-	-	-	-	-	-	-	-	-	-	59
Analytical	23	30	27	46	32	62	46	72	60	63	461	657
Inorganic	32	35	42	38	50	47	62	59	66	73	504	930
Nuclear	1	-	3	3	3	1	2	-	-	-	13	48
Organic	74	61	78	70	73	79	96	88	89	102	810	1647
Pharmaceutical	15	5	11	16	15	15	17	16	19	22	151	232
Physical	56	51	49	61	63	70	71	59	71	87	638	1391
Polymer	5	5	5	12	12	14	12	13	12	15	105	123
Theoretical	7	6	6	7	5	7	6	17	9	9	79	170
Chemistry, general	27	25	29	23	40	45	52	53	73	93	460	674
Chemistry, other	15	18	23	21	27	22	32	29	28	33	248	364
EARTH, ATMOS, & MARINE SCI	64	56	103	97	106	111	100	114	145	148	1044	1494
Applied geo, geo eng(8)	-	-	-	-	-	-	-	-	-	-	-	1
Applied geology(8)	-	-	2	-	2	-	1	1	1	-	7	13
Atmos/meteorol sci, gen(2)	-	-	-	1	1	-	-	4	1	3	10	10
Atmos/meteorol sci, other	4	1	1	3	3	-	1	3	1	3	20	33
Atmospheric dynamics	3	1	3	1	2	1	2	3	2	2	20	25
Atmospheric phys/chem	1	1	-	1	-	1	3	4	-	2	13	17
Environmental sciences(9)	6	11	11	11	9	6	8	6	16	20	104	155
Geochemistry(10)	6	5	8	9	7	11	7	9	7	13	82	124
Geology(11)	-	-	-	17	22	21	23	25	36	35	179	179
Structural geology(11)	1	1	6	-	-	-	-	-	-	-	8	24
Geomorph/glacial geology	2	2	6	2	1	1	2	2	3	3	24	36
Geophysics/seismology(12)	2	6	6	8	7	13	18	11	8	11	90	110
Geophysics(12)	-	-	-	-	-	-	-	-	-	-	-	15
Hydrology/water res(13)	3	1	3	1	2	1	1	5	5	2	24	26
Marine sciences(2)	-	-	-	7	6	2	3	3	9	6	36	36
Marine sciences, other(14)	5	2	9	-	-	-	-	-	-	-	16	24
Meteorology(15)	-	-	-	-	2	2	2	-	7	-	13	28
Mineral, petrol, geochem(10)	-	-	-	-	-	-	-	-	-	-	-	20
Minerology, petrology(10)	4	5	8	6	6	10	4	8	3	5	59	95
Oceanography	10	7	14	18	21	21	8	13	17	19	148	208
Paleontology	5	1	7	2	6	5	7	5	3	4	45	98
Stratigraphy, sediment	5	7	8	4	2	5	-	2	8	6	47	77
Geological sciences, gen(16)	-	-	-	2	3	5	1	3	2	2	18	18
Geological sciences, oth(16)	-	-	-	2	4	3	4	5	6	10	34	34
Earth sciences, general(16)	4	3	5	-	-	-	-	-	-	-	12	34
Earth sciences, other(16)	3	2	6	-	-	-	-	-	-	-	11	30
Physical sciences, other(2)	-	-	-	2	-	3	5	2	10	2	24	24
MATHEMATICS	95	112	96	113	115	106	121	125	121	156	1160	2609
Algebra	15	14	12	8	13	6	18	10	10	10	116	413
Analysis/funct analysis(17)	8	8	15	8	13	10	11	6	15	20	114	356
Applied mathematics	9	24	10	21	16	19	20	29	17	28	193	286
Computing theory	-	2	-	2	1	1	-	4	3	1	14	118
Geometry	2	1	2	6	6	2	1	3	4	7	34	83
Logic	2	1	-	2	1	4	3	2	2	5	22	65
Number theory	3	1	4	4	4	2	1	2	5	5	31	86
Operations research	5	4	5	5	1	6	4	1	3	4	38	57
Probability/math stat (18)	26	32	29	27	31	32	27	36	31	38	309	532
Topology	7	11	5	9	10	4	6	3	3	8	66	181
Mathematics, general	12	8	7	8	11	12	20	22	20	18	138	273
Mathematics, other	6	6	7	13	8	8	10	7	8	12	85	159
COMPUTER/INFORMATION SCIENCES	21	26	20	36	37	33	48	65	56	107	449	493
Computer sciences	21	26	20	33	24	20	39	51	39	69	342	386
Information sci/systems(2)	-	-	-	3	13	13	9	14	17	38	107	107

See footnotes at end of table.

Table 1. Science and engineering doctorates by subfield and sex: 1960-89--continued

				Year of doctorate										
Field of study	Total 1960-1964	Total 1965-1969	Total 1960-1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-1979
FEMALE														
AGRICULTURAL & BIOLOGICAL SCI ..	925	2010	2935	538	660	673	789	780	849	853	843	958	1031	7974
Agricultural sciences	30	51	81	23	29	30	31	41	43	50	56	65	80	448
Agric business & mgmt (19) .	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Agronomy	3	3	6	2	5	4	2	2	2	3	3	8	9	40
Animal breeding/genetics(20)	9	11	20	1	2	1	1	-	-	1	1	-	1	8
Animal nutrition(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Animal sci/nutrition(21) ...	-	1	1	-	-	2	4	9	9	8	4	8	8	52
Dairy science(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Poultry science(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Animal sciences, other(21) .	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fish/wildlife(22)	-	1	1	2	-	1	2	2	1	2	2	2	2	16
Fisheries science(22)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wildlife management(22)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wildlife/range mgmt(22)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Food sciences(23)	-	1	1	4	11	8	10	19	17	21	25	25	22	162
Food engineering(23)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Food sciences, other(23) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Forestry science(24)	-	1	1	-	-	-	-	-	2	-	3	3	5	13
Forest biology(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Forest management(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Renewable natrl resrces(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Forestry&relatd sci, oth(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Horticulture science	5	8	13	4	2	3	1	2	2	4	4	1	9	32
Plant breeding/genetics(25).	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Plant pathology(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phytopathology(25)	12	17	29	5	3	5	8	5	5	5	11	6	19	72
Plant protectn-pest mgmt(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Plant sciences, other(25) ..	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Soil sciences(26)	-	-	-	1	3	2	2	1	-	2	1	5	3	20
Soil chem/microbio(26)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Soil sciences, other(26) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Agriculture, general	-	1	1	-	-	-	-	-	-	1	1	2	-	4
Agriculture, other	1	7	8	4	3	4	1	1	5	3	1	5	2	29
Biological sciences	895	1959	2854	515	631	643	758	739	806	803	787	893	951	7526
Anatomy	40	83	123	26	26	43	31	24	25	35	23	42	48	323
Biochemistry	230	484	714	97	121	105	129	149	147	141	135	146	158	1328
Biometrics/biostat	8	16	24	8	7	7	4	7	11	8	13	9	11	85
Biophysics	14	36	50	10	10	16	8	14	12	20	16	22	14	142
Botany, other(27)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Botany(27)	75	118	193	31	31	31	50	28	33	39	32	46	38	359
Cell biology(28)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cytology(28)	16	59	75	17	26	18	19	14	10	14	12	9	11	150
Ecology	6	12	18	6	11	12	16	16	19	19	19	20	25	163
Embryology	12	57	69	13	11	8	10	7	9	1	7	4	7	77
Endocrinology(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Entomology	12	46	58	8	12	9	16	13	8	8	18	12	11	115
Human/animal genetics(29) ..	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Plant genetics(29)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Genetics(29)	56	104	160	34	28	39	24	31	49	44	45	44	52	390
Human/animal pathology(30) .	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Plant pathology(30)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pathology(30)	5	13	18	-	6	10	6	8	8	23	16	29	20	126
Human/animal pharmacol	26	72	98	17	22	23	27	33	26	25	41	46	35	295
Human/animal physiol(31) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Animal physiology(31)	54	188	242	42	58	52	67	54	60	53	56	58	76	576
Animal/plant physiol(31) ...	32	-	32	-	-	-	-	-	-	-	-	-	-	-
Plant physiology(31)	14	39	53	8	11	7	20	11	11	14	11	5	13	111
Hydrobiology	1	3	4	-	3	2	1	-	2	1	1	1	3	14
Immunology	-	-	-	-	-	6	12	17	21	30	33	29	48	196
Microbiology(32)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bacteriology(32)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Microbiology/bacteriol(32) .	147	326	473	74	74	90	92	106	98	93	86	101	118	932
Molecular biology	-	19	19	25	24	52	30	45	54	43	32	54	33	392
Neurosciences	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nutritional sciences(33) ...	7	-	7	-	-	-	-	-	-	44	45	56	68	213
Parasitology	-	-	-	-	-	-	5	4	3	2	1	1	5	21
Toxicology(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zoology, other(34)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zoology(34)	117	194	311	31	56	44	67	43	63	43	50	48	59	504
Biological sci, general	7	39	46	25	47	23	46	56	53	57	54	64	50	475
Biological sci, other	16	51	67	43	47	46	78	59	84	46	41	47	48	539

See footnotes at end of table.

Table 1. Science and engineering doctorates by subfield and sex: 1960-89--continued

	Year of doctorate											
Field of study	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1980-1989	Total 1960-1989
FEMALE												
AGRICULTURAL & BIOLOGICAL SCI ..	1150	1221	1292	1366	1348	1409	1452	1531	1689	1763	14221	25130
Agricultural sciences	97	134	151	133	133	171	172	171	186	229	1577	2106
Agric business & mgmt (19) .	-	-	-	-	-	-	-	-	-	1	1	1
Agronomy	10	15	16	11	12	19	15	17	19	20	154	200
Animal breeding/genetics(20)	2	-	3	4	5	8	4	3	2	3	34	62
Animal nutrition(21)	-	-	-	6	7	13	13	13	12	15	79	79
Animal sci/nutrition(21) ...	13	17	17	-	-	-	-	-	-	-	47	100
Dairy science(21)	-	-	-	-	-	-	-	-	1	1	2	2
Poultry science(21)	-	-	-	-	-	-	-	-	2	2	4	4
Animal sciences, other(21) .	-	-	-	9	15	13	16	16	13	25	107	107
Fish/wildlife(22)	7	9	7	-	-	-	-	-	-	-	23	40
Fisheries science(22)	-	-	-	6	5	5	9	-	8	5	38	38
Wildlife management(22)	-	-	-	1	3	1	2	1	-	-	8	8
Wildlife/range mgmt(22)	-	-	-	-	-	-	-	-	8	10	18	18
Food sciences(23)	24	28	30	38	32	33	40	48	3	-	276	439
Food engineering(23)	-	-	-	-	-	-	-	-	1	1	2	2
Food sciences, other(23) ...	-	-	-	-	-	-	-	-	36	53	89	89
Forestry science(24)	6	6	4	4	5	15	17	5	2	-	64	78
Forest biology(24)	-	-	-	-	-	-	-	-	3	3	6	6
Forest management(24)	-	-	-	-	-	-	-	-	2	2	4	4
Renewable natrl resrces(24)	-	-	-	-	-	-	-	-	-	1	1	1
Forestry&relatd sci, oth(24)	-	-	-	-	-	-	-	-	6	8	14	14
Horticulture science	8	17	19	9	21	11	12	16	16	19	148	193
Plant breeding/genetics(25).	-	-	-	13	8	14	13	11	12	13	84	84
Plant pathology(25)	-	-	-	19	8	24	14	22	12	24	123	123
Phytopathology(25)	14	21	27	-	-	-	-	-	-	-	62	163
Plant protectn-pest mgmt(25)	-	-	-	-	-	-	-	-	-	1	1	1
Plant sciences, other(25) ..	-	-	-	1	2	3	5	3	3	4	21	21
Soil sciences(26)	6	7	15	7	4	7	10	7	1	-	64	84
Soil chem/microbio(26)	-	-	-	-	-	-	-	-	7	7	14	14
Soil sciences, other(26) ...	-	-	-	-	-	-	-	-	11	7	18	18
Agriculture, general	-	1	1	-	-	-	-	-	3	2	7	12
Agriculture, other	7	13	12	5	6	5	2	9	3	2	64	101
Biological sciences	1053	1087	1141	1233	1215	1238	1280	1360	1503	1534	12644	23024
Anatomy	45	48	62	37	37	45	27	42	32	26	401	847
Biochemistry	188	189	166	195	191	184	194	199	203	266	1975	4017
Biometrics/biostat	13	12	18	22	18	12	10	14	15	20	154	263
Biophysics	18	10	13	16	21	7	13	22	21	21	162	354
Botany, other(27)	-	-	-	39	38	34	42	36	41	52	282	282
Botany(27)	38	42	42	-	-	-	-	-	-	-	122	674
Cell biology(28)	-	-	-	41	48	39	44	55	55	57	339	339
Cytology(28)	13	14	18	-	-	-	-	-	-	-	45	270
Ecology	36	52	42	37	45	52	40	38	47	37	426	607
Embryology	7	10	3	7	8	5	7	-	3	4	54	200
Endocrinology(2)	-	-	-	14	11	4	6	11	10	10	66	66
Entomology	26	13	23	20	29	34	22	25	26	22	240	413
Human/animal genetics(29) ..	-	-	-	43	39	49	41	54	57	57	340	340
Plant genetics(29)	-	-	-	5	4	8	10	7	6	3	43	43
Genetics(29)	55	62	65	-	-	-	-	-	-	-	182	732
Human/animal pathology(30) .	-	-	-	24	23	35	33	48	43	40	246	246
Plant pathology(30)	-	-	-	8	5	8	5	10	9	8	53	53
Pathology(30)	28	27	26	-	-	-	-	-	-	-	81	225
Human/animal pharmacol	60	69	77	71	60	76	81	86	91	98	769	1162
Human/animal physiol(31) ...	-	-	-	68	59	70	77	76	89	104	543	543
Animal physiology(31)	68	80	76	-	-	-	-	-	-	-	224	1042
Animal/plant physiol(31) ...	-	-	-	-	-	-	-	-	-	-	-	32
Plant physiology(31)	9	11	13	24	23	12	18	15	23	15	163	327
Hydrobiology	-	-	-	-	-	-	-	-	-	-	-	18
Immunology	41	60	58	66	52	54	51	52	90	61	585	781
Microbiology(32)	-	-	-	117	121	113	118	103	120	123	815	815
Bacteriology(32)	-	-	-	4	4	4	2	6	2	3	25	25
Microbiology/bacteriol(32) .	118	103	91	-	-	-	-	-	-	-	312	1717
Molecular biology	60	69	81	76	103	95	115	116	130	152	997	1408
Neurosciences	-	-	38	49	43	58	39	48	59	63	397	397
Nutritional sciences(33) ...	62	59	71	72	68	72	86	97	89	90	766	986
Parasitology	7	5	2	-	4	2	3	5	8	5	41	62
Toxicology(2)	-	-	-	16	25	24	33	34	30	38	200	200
Zoology, other(34)	-	-	-	63	42	46	44	44	43	35	317	317
Zoology(34)	46	47	45	-	-	-	-	-	-	-	138	953
Biological sci, general	62	59	62	60	56	62	73	81	98	79	692	1213
Biological sci, other	53	46	49	39	38	34	46	36	63	45	449	1055

See footnotes at end of table.

Table 1. Science and engineering doctorates by subfield and sex: 1960-89--continued

Field of study	Total 1960-1964	Total 1965-1969	Total 1960-1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-1979
				Year of doctorate										
FEMALE														
SOCIAL SCIENCES	501	1013	1514	327	444	471	576	664	728	776	721	811	827	6345
Agricultural economics	-	-	-	-	2	3	6	5	3	4	6	5	11	45
Anthropology	66	152	218	59	65	72	97	125	138	157	136	163	168	1180
Area studies	4	12	16	6	11	7	2	9	8	8	3	10	9	73
Criminology(35)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Demography(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Econometrics	2	7	9	1	1	1	-	1	2	1	2	2	1	12
Economics	89	156	245	51	54	57	57	74	84	92	71	91	104	735
Geography	20	18	38	3	16	12	17	13	10	16	27	31	23	168
History of science(36)	-	-	-	-	7	3	10	9	6	14	5	7	6	67
International relations	33	41	74	6	14	10	26	8	21	12	11	10	18	136
Linguistics	46	122	168	34	41	48	66	70	70	70	73	65	78	615
Pol sci/government(37)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Political science(37)	-	-	-	-	-	-	-	1	-	106	102	118	95	422
Pol sci, public admin(37)	79	180	259	56	83	84	93	115	121	8	-	-	-	560
Public policy studies(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sociology	155	290	445	93	116	138	154	185	210	223	237	224	232	1812
Statistics	-	9	9	8	4	5	6	2	6	5	5	14	4	59
Urban studies(38)	-	-	-	-	-	7	7	5	8	14	14	23	15	93
Social sciences, general	2	5	7	1	9	3	5	10	14	10	6	10	17	85
Social sciences, other	5	21	26	9	21	21	30	32	27	36	23	38	46	283
PSYCHOLOGY	821	1448	2269	444	530	609	717	801	873	946	1088	1127	1260	8395
Clinical	328	513	841	151	167	163	220	233	260	275	341	418	424	2652
Cognitive(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Comparative(39)	5	12	17	3	1	4	3	4	7	9	8	9	10	58
Counseling(40)	51	80	131	27	36	44	60	63	69	91	90	92	138	710
Developmental(41)	51	114	165	35	58	69	77	83	99	102	119	103	135	880
Educational	67	89	156	22	24	45	35	39	44	45	60	55	73	442
Exper, compar, physiol(39)	59	-	59	-	-	-	-	-	-	-	-	-	-	-
Experimental(39)	74	213	287	70	81	73	85	84	88	88	99	85	82	835
Indust/organizational(42)	5	13	18	6	4	2	6	7	10	10	13	15	20	93
Physiological(39)	12	63	75	20	31	26	33	37	31	38	32	36	27	311
Quantitative(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Personality	25	35	60	10	14	22	17	16	15	31	29	13	23	190
Psychometrics	8	18	26	2	5	3	5	8	1	1	4	4	6	39
School	16	31	47	13	19	32	41	38	42	66	68	58	60	437
Social	91	140	231	34	43	46	54	59	66	61	69	76	90	598
Psychology, general	24	94	118	27	28	38	41	73	88	77	98	105	87	662
Psychology, other	5	33	38	24	19	42	40	57	53	52	58	58	85	488
TOTAL, ENGINEERING	31	46	77	16	16	22	46	34	52	55	74	53	62	430
Aeronaut/astronautical(43)	5	1	6	2	3	-	2	3	2	-	3	1	-	16
Agricultural	-	-	-	-	-	-	1	-	1	-	-	-	-	2
Bioengineering/biomed(44)	-	-	-	-	-	3	1	1	5	2	-	-	1	13
Ceramic	1	2	3	-	-	1	1	2	-	-	3	-	1	8
Chemical	6	11	17	2	3	2	4	8	4	7	9	5	8	52
Civil	4	3	7	1	1	1	6	3	3	4	7	6	2	34
Communications(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Computer	-	-	-	-	-	-	-	-	7	8	9	5	3	32
Electrical/electronics(45)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Electrical(45)	6	5	11	1	3	4	6	3	9	7	9	11	7	60
Electronics(45)	2	1	3	2	1	1	1	-	-	-	3	1	1	10
Engineering mechanics	2	5	7	1	-	-	4	2	2	1	3	1	1	15
Engineering physics(46)	1	1	2	1	-	1	1	1	-	-	-	-	1	5
Engineering science(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Environmental health eng(47)	1	1	2	-	-	1	3	-	2	2	1	2	2	13
Fuel tech/petro eng(8)	-	-	-	1	1	-	-	1	-	1	-	-	-	4
Industrial	-	4	4	-	2	-	2	1	2	2	5	2	5	21
Materials science	-	-	-	-	-	-	3	-	5	6	6	3	7	30
Mechanical	-	2	2	1	-	2	3	5	2	3	3	2	4	25
Metallurgical(48)	1	6	7	1	1	2	3	1	-	2	1	2	-	13
Mining/mineral(49)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Naval arch/marine engin(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nuclear(46)	-	-	-	1	-	1	1	1	3	2	2	4	3	18
Ocean(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Operations research	-	-	-	-	-	1	3	1	-	3	4	2	6	20
Petroleum(50)	-	-	-	-	-	-	-	-	1	-	1	-	1	3
Polymer(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Systems(51)	-	-	-	-	-	-	-	-	-	1	-	1	5	7
Engineering, general	-	1	1	-	-	-	-	-	-	-	2	1	1	4
Engineering, other	2	3	5	2	1	2	1	1	4	4	3	4	3	25
TOTAL, NON-SCI/ENGINEERING(52)	3562	7031	10593	2327	2606	3145	3575	3791	4296	4635	4702	4934	5261	39272
TOTAL, ALL FIELDS	6358	12608	18966	3971	4596	5287	6085	6453	7201	7684	7858	8322	8937	66394

See footnotes at end of table.

Table 1. Science and engineering doctorates by subfield and sex: 1960-89--continued

	Year of doctorate											
Field of study	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1980-1989	Total 1960-1989
FEMALE												
SOCIAL SCIENCES	831	820	840	920	917	950	1035	936	1046	1032	9327	17186
Agricultural economics	12	13	20	18	29	21	16	23	31	25	208	253
Anthropology	174	152	138	175	171	181	197	181	170	148	1687	3085
Area studies	5	5	7	11	2	5	6	5	5	5	56	145
Criminology(35)	6	9	17	7	10	10	7	7	15	10	98	98
Demography(2)	-	-	-	12	8	9	6	7	11	9	62	62
Econometrics	2	1	2	4	4	2	2	4	4	2	27	48
Economics	102	100	98	129	120	122	163	136	163	171	1304	2284
Geography	17	20	19	37	21	29	39	26	33	25	266	472
History of science(36)	10	5	10	7	11	2	10	10	10	9	84	151
International relations	11	12	11	15	13	16	15	15	14	28	150	360
Linguistics	75	78	90	86	82	91	96	106	83	106	893	1676
Pol sci/government(37)	-	-	-	83	97	107	117	111	96	109	720	720
Political science(37)	102	96	106	-	-	-	-	-	-	-	304	726
Pol sci, public admin(37)	-	-	-	-	-	-	-	-	-	-	-	819
Public policy studies(2)	-	-	-	26	20	24	34	30	25	28	187	187
Sociology	231	242	214	216	226	234	215	168	238	222	2206	4463
Statistics	9	7	5	5	11	14	17	13	9	20	110	178
Urban studies(38)	18	17	25	22	21	21	16	22	32	23	217	310
Social sciences, general	13	5	14	3	6	8	13	6	13	8	89	181
Social sciences, other	44	58	64	64	65	54	66	66	94	84	659	968
PSYCHOLOGY	1311	1473	1438	1597	1631	1541	1598	1695	1676	1800	15760	26424
Clinical	485	557	517	594	598	591	602	667	610	695	5916	9409
Cognitive(2)	-	-	-	31	37	23	33	41	34	33	232	232
Comparative(39)	2	3	6	4	9	2	6	6	4	1	43	118
Counseling(40)	140	160	156	199	230	215	237	254	261	283	2135	2976
Developmental(41)	121	121	125	148	156	112	117	139	131	116	1286	2331
Educational	61	77	75	75	110	78	58	50	65	61	710	1308
Exper, compar, physiol(39)	-	-	-	-	-	-	-	-	-	-	-	59
Experimental(39)	98	93	97	81	70	65	64	54	61	69	752	1874
Indust/organizational(42)	16	22	23	30	40	29	52	49	54	47	362	473
Physiological(39)	24	34	23	27	20	35	30	32	45	33	303	689
Quantitative(2)	-	-	-	4	5	4	8	7	5	6	39	39
Personality	18	26	17	9	12	9	9	11	8	17	136	386
Psychometrics	10	10	1	8	3	3	7	3	6	3	54	119
School	83	73	86	72	50	54	59	53	66	69	665	1149
Social	78	76	85	103	82	94	79	72	75	66	810	1639
Psychology, general	93	133	105	133	134	125	149	170	193	224	1459	2239
Psychology, other	82	88	122	79	75	102	88	87	58	77	858	1384
TOTAL, ENGINEERING	90	99	124	124	151	198	225	242	286	373	1912	2419
Aeronaut/astronautical(43)	1	-	1	2	2	5	1	10	9	8	39	61
Agricultural	1	2	2	1	1	3	1	3	3	6	23	25
Bioengineering/biomed(44)	3	3	6	8	9	11	9	15	18	26	108	121
Ceramic	2	1	1	3	2	-	3	4	3	4	23	34
Chemical	14	11	17	22	25	35	53	56	60	74	367	436
Civil	6	6	12	12	19	18	19	17	25	45	179	220
Communications(2)	-	-	-	-	-	2	-	-	3	1	6	6
Computer	5	8	3	6	1	5	5	2	7	12	54	86
Electrical/electronics(45)	-	-	-	6	14	27	33	30	38	54	202	202
Electrical(45)	11	14	17	1	-	1	-	-	-	-	44	115
Electronics(45)	1	-	2	-	-	-	-	-	-	-	3	16
Engineering mechanics	3	1	5	2	9	4	4	3	3	7	41	63
Engineering physics(46)	-	2	-	-	-	1	-	1	-	-	4	11
Engineering science(2)	-	-	-	1	-	-	3	-	3	3	10	10
Environmental health eng(47)	5	4	5	1	6	2	2	1	5	10	41	56
Fuel tech/petro eng(8)	-	-	-	-	-	-	-	-	-	-	-	4
Industrial	7	6	6	6	16	6	14	13	19	18	111	136
Materials science	5	11	13	22	17	23	18	36	25	34	204	234
Mechanical	4	5	12	6	6	22	14	14	26	22	131	158
Metallurgical(48)	7	5	3	5	7	9	3	5	5	6	55	75
Mining/mineral(49)	-	-	1	1	-	-	2	1	1	4	10	10
Naval arch/marine engin(2)	-	-	-	-	-	-	-	-	-	1	1	1
Nuclear(46)	1	6	7	5	6	3	6	2	4	7	47	65
Ocean(2)	-	-	-	-	-	-	-	1	-	2	3	3
Operations research	5	7	5	5	-	8	11	7	4	13	65	85
Petroleum(50)	-	-	2	-	-	-	1	-	2	1	6	9
Polymer(2)	-	-	-	1	2	6	7	4	3	5	28	28
Systems(51)	3	4	2	3	1	4	2	3	7	3	32	39
Engineering, general	5	1	1	1	-	-	5	8	2	2	25	30
Engineering, other	1	2	1	4	8	3	9	6	11	5	50	80
TOTAL, NON-SCI/ENGINEERING(52)	5523	5776	5823	5909	5995	5933	6220	6191	6236	6516	60122	109987
TOTAL, ALL FIELDS	9407	9892	10093	10533	10699	10745	11304	11425	11812	12510	108420	193780

See footnotes at end of table.

SOURCE: Survey of Earned Doctorates

FOOTNOTES

NOTE: A hyphen (-) in a data column signifies that the subfield was not identified separately in the questionnaire for that year (e.g., the subfield "Polymer chemistry" was introduced in 1973), or that this subfield was included in the questionnaire for that year but no doctorates were reported.

(1) "Astronomy/astrophysics" were combined until 1969 when separate subfields were introduced.

(2) This subfield was introduced in 1983.

(3) This subfield was originally called "Electricity and magnetism." In 1966 the name was changed to "Electromagnetism." In 1980 this subfield was deleted from the taxonomy.

(4) "Thermal physics" was originally shown as one subfield, "Mechanics and heat." In 1960 this subfield was separated into "Mechanics" and "Heat (Thermal)." The latter was subsequently changed to "Thermal phenomena" in 1963 and then to "Thermal physics" in 1967. "Mechanics" was deleted from the taxonomy in 1977.

(5) This subfield was originally named "Nuclear structure." It was changed to "Nuclear" in 1983.

(6) This subfield was deleted in 1962, but some degrees were reported for 1962 and 1963 because outdated forms were used by some institutions.

(7) This subfield was added in 1960 under the original name of "Heat (Thermal)." It was deleted in 1982. See footnote 4 for more information.

(8) In 1960 "Geophysical engineering" and Geological engineering" were merged into "Geo-engineering." "Geo-engineering" became "Applied geology, geological engineering, economic geology, and petroleum engineering" in 1962, and was split into "Applied geology, geological engineering, and economic geology" and "Fuel technology and petroleum engineering" in 1969. "Fuel technology and petroleum engineering" was discontinued in this major group, and in 1983 "Applied geology, geological engineering, and economic geology" was replaced by "Applied geology" (also see footnote 50).

(9) "Environmental sciences, general" and "Environmental sciences, other" were deleted in 1983, and "Environmental sciences" was introduced.

(10) "Mineralogy, petrology, and geochemistry" was split into "Geochemistry" and "Mineralogy, petrology" in 1969.

(11) "Structural geology" was deleted in 1983, and "Geology" was introduced.

(12) "Geophysics" was replaced by "Geophysics, solid earth" in 1976. It was changed to "Geophysics and seismology" in 1983.

(13) This subfield was originally listed as "Hydrology." "Water resources" was added to the title in 1977.

(14) This subfield was introduced in 1977 and deleted in 1983.

(15) This subfield was deleted in 1976 and restored in 1983.

(16) "Earth science, general" and "Earth science, other" were deleted in 1983, and "Geological sciences, general" and "Geological sciences, other" were introduced.

(17) This subfield was specified as "Analysis" through 1967. "Functional analysis" was added in 1968.

(18) "Math statistics" was removed from the name of this subfield in 1969, but was restored in 1972.

(19) This subfield was introduced in 1988.

(20) This subfield was previously called "Animal husbandry." It was changed in 1983.

(21) The "Animal sciences" subfield was introduced in 1972. The name was changed to "Animal science and animal nutrition" in 1977. The field was separated into "Animal nutrition" and "Animal sciences, other" in 1983. In 1988 "Dairy science" and "Poultry science" were introduced.

(22) "Fish and wildlife" was split into two separate subfields in 1983. In 1988 "Wildlife management" was discontinued, and "Wildlife/range management" was introduced.

(23) This subfield was introduced as "Food science and technology" in 1969. The name was changed to "Food sciences" in 1983. In 1988 the field was separated into "Food distribution," "Food engineering," and "Food sciences, other."

(24) In 1988 "Forestry science" was separated into "Forestry biology," "Forest engineering," "Forest management," "Wood science," "Renewable natural resources," and "Forestry and related sciences, other."

(25) "Phytopathology" was discontinued in 1983 and subfields "Plant breeding and genetics," "Plant pathology," and "Plant sciences, other" were introduced. In 1988 "Plant protection-pest management" was introduced.

(26) This subfield was changed from "Soils and soil science" to "Soil sciences" in 1983. In 1988 "Soil sciences" was separated into "Soil chemistry/microbiology" and "Soil sciences, other."

(27) The subfield "Botany" was discontinued in 1983, and "Botany, other" was introduced.

(28) "Cytology" was introduced in 1962 and discontinued in 1983. "Cell biology" was introduced in 1983.

(29) "Genetics" was split into "Plant genetics" and "Human and animal genetics" in 1983.

(30) "Pathology" was split into "Plant pathology" and "Human and animal pathology" in 1983.

(31) In 1962 "Animal and plant physiology" was separated into "Animal physiology" and "Plant physiology." In 1983 "Animal physiology" was replaced by "Human and animal physiology."

(32) This subfield was originally called "Microbiology." "Bacteriology" was added in 1970. In 1983, they were split into two separate subfields.

(33) The subfield "Nutrition" was discontinued in 1963. "Nutrition and dietetics" was introduced in 1976 and was replaced by "Nutritional sciences" in 1983.

(34) The subfield "Zoology" was discontinued in 1983, and "Zoology, other" was introduced.

(35) This subfield was introduced in 1980 as "Criminology and criminal justice." The name was changed to "Criminology" in 1983.

(36) The subfield "History and philosophy of science" was introduced in 1971. The name was changed to "History of science" in 1983.

(37) "Political science, public administration" was split into two separate subfields in 1976. "Public administration" was not included in science or engineering fields after 1976. In 1983, "Political science and government" replaced "Political science."

(38) This subfield was changed from "Urban and regional planning" to "Urban studies" in 1983.

(39) "Experimental, comparative, and physiological psychology" was split into three separate subfields in 1962.

(40) This subfield was changed from "Counseling and guidance" to "Counseling" in 1983.

(41) This subfield was changed from "Developmental and gerontological" to "Developmental" in 1983.

(42) This subfield was changed from "Industrial and personnel" to "Industrial and organizational" in 1983.

(43) This subfield was originally named "Aeronautical engineering." In 1966 the term "Astronautical" was added, and in 1983 the term "Aerospace" was added.

(44) "Biomedical" was introduced in 1969, and "Bioengineering" was added in 1983.

(45) These two subfields were merged in 1983.

(46) In 1961 "Nuclear engineering" was deleted from the taxonomy, and previous cases were added to "Engineering physics." In 1969 "Nuclear engineering" was reinstated in the taxonomy.

(47) This subfield was called "Sanitary and environmental" prior to 1983.

(48) This subfield was originally specified as "Metallurgy and metallurgical engineering." The term "Physical" was introduced in 1967. It was changed to "Metallurgical" in 1983.

(49) "Mining engineering" was deleted in 1961 but was restored to the taxonomy in 1969. The name was changed to "Mining and mineral" in 1983.

(50) The subfield "Fuel technology and petroleum engineering" was added to the Engineering section of the taxonomy in 1973. The name was changed to "Petroleum" in 1983 (also see footnote 8).

(51) This subfield was introduced as "Systems design and systems science" in 1975. It was changed to "Systems" in 1983.

(52) Non-science/engineering doctorates in this table include doctorates whose field of specialization is unclassified.

Table 2. Citizenship status of science and engineering doctorates by subfield: 1960-89

Field of study	Total 1960-1964	Total 1965-1969	Total 1960-1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-1979
	Year of doctorate													
U.S. CITIZENS														
TOTAL, SCIENCE/ENGINEERING	31539	53028	84567	14567	15465	15144	14971	13750	14288	14082	13636	13331	13524	142758
TOTAL, SCIENCES	26947	43335	70282	12049	13039	12810	12826	11996	12571	12524	12163	12070	12230	124278
PHYSICAL SCIENCES	8120	12347	20467	3211	3209	2889	2644	2339	2317	2175	2071	1978	2040	24873
Physics/astronomy	2934	5131	8065	1337	1372	1278	1188	956	925	911	833	804	800	10404
Acoustics	42	41	83	23	14	17	13	12	11	9	9	13	11	132
Astronomy(1)	-	32	32	40	50	54	52	51	50	67	59	62	48	533
Astronomy/astrophysics(1)	116	250	366	-	-	-	-	-	-	-	-	-	-	-
Astrophysics(1)	-	60	60	50	50	58	58	67	55	61	47	61	49	556
Atomic/molecular	361	542	903	133	107	130	99	99	101	94	86	68	64	981
Electron(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Electromagnetism(3)	89	100	189	15	14	10	10	6	8	8	7	9	4	91
Elementary particle	438	814	1252	196	216	145	159	104	96	94	100	106	92	1308
Fluids	77	142	219	15	15	24	20	13	16	16	11	9	12	151
Mechanics(4)	18	32	50	5	6	5	4	2	2	3	-	-	-	27
Nuclear(5)	555	748	1303	176	186	195	135	108	93	69	70	57	78	1167
Optics	30	57	87	27	20	28	26	18	22	42	26	24	34	267
Plasma	-	53	53	66	68	69	57	44	38	60	54	55	44	555
Polymer(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Solid state	711	1451	2162	349	365	305	311	243	224	203	179	177	170	2526
Theoretical physics(6)	210	-	210	-	-	-	-	-	-	-	-	-	-	-
Thermal(7)	25	81	106	15	14	12	10	10	8	3	3	7	6	88
Physics, general	76	271	347	98	100	86	120	81	98	90	98	85	105	961
Physics, other	186	457	643	129	147	140	114	98	103	92	84	71	83	1061
Chemistry	5186	7216	12402	1874	1837	1611	1456	1383	1392	1264	1238	1174	1240	14469
Agricultural/food	113	137	250	33	35	10	3	10	3	9	5	3	9	120
Analytical	376	574	950	141	159	133	115	127	123	133	157	156	177	1421
Inorganic	514	910	1424	277	273	249	238	177	206	196	169	171	174	2130
Nuclear	111	108	219	28	29	17	21	24	20	19	20	11	11	200
Organic	2235	3078	5313	745	700	614	531	533	483	395	397	365	378	5141
Pharmaceutical	153	167	320	35	45	27	36	48	47	34	32	28	29	361
Physical	1489	1908	3397	461	419	380	351	296	313	282	267	238	268	3275
Polymer	-	-	-	-	-	-	8	15	28	26	37	34	41	189
Theoretical	84	154	238	55	48	59	41	41	35	42	28	38	41	428
Chemistry, general	49	66	115	48	59	57	63	76	87	81	81	79	70	701
Chemistry, other	62	114	176	51	70	65	49	36	47	47	45	51	42	503
EARTH, ATMOS, & MARINE SCI	1142	1701	2843	396	459	469	502	455	491	507	558	518	531	4886
Applied geo, geo eng(8)	85	79	164	-	-	-	-	-	-	-	-	-	-	-
Applied geology(8)	-	17	17	13	26	31	17	17	14	16	17	13	16	180
Atmos/meteorol sci, gen(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Atmos/meteorol sci, other	-	-	-	-	-	-	-	-	-	13	32	25	29	99
Atmospheric dynamics	-	-	-	-	-	-	-	-	-	11	25	18	16	70
Atmospheric phys/chem	-	-	-	-	-	-	-	-	-	13	14	17	14	58
Environmental sciences(9)	-	-	-	-	-	14	50	46	65	53	46	38	44	356
Geochemistry(10)	-	27	27	31	42	27	32	37	37	39	47	46	49	387
Geology(11)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Structural geology(11)	58	117	175	10	27	19	18	12	15	21	19	26	22	189
Geomorph/glacial geology	41	62	103	15	22	18	26	19	25	28	21	22	14	210
Geophysics/seismology(12)	-	-	-	-	-	-	-	-	-	29	55	46	65	195
Geophysics(12)	98	137	235	42	51	56	49	55	60	18	-	-	-	331
Hydrology/water res(13)	10	34	44	15	21	9	20	9	16	11	15	19	16	151
Marine sciences(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marine sciences, other(14)	-	-	-	-	-	-	-	-	-	-	9	28	29	66
Meteorology(15)	80	165	245	43	51	63	45	42	30	14	-	-	-	288
Mineral, petrol, geochem(10)	311	301	612	-	-	-	-	-	-	-	-	-	-	-
Minerology, petrology(10)	-	40	40	45	40	46	36	29	30	45	54	34	31	390
Oceanography	53	179	232	62	47	71	75	67	73	73	95	84	77	724
Paleontology	117	184	301	39	29	27	42	37	38	39	26	29	34	340
Stratigraphy, sediment	263	238	501	44	61	46	46	42	41	47	32	27	27	413
Geological sciences, gen(16)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Geological sciences, oth(16)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Earth sciences, general(16)	12	61	73	20	22	23	27	26	23	19	33	32	30	255
Earth sciences, other(16)	14	60	74	17	20	19	19	17	24	18	18	14	18	184
Physical sciences, other(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MATHEMATICS	1697	3570	5267	1018	1009	1030	951	876	848	748	690	619	552	8341
Algebra	231	599	830	172	174	145	122	98	100	92	73	72	72	1120
Analysis/funct analysis(17)	491	926	1417	205	221	207	197	160	133	114	114	91	79	1521
Applied mathematics	206	463	669	117	94	85	80	90	79	76	83	77	72	853
Computing theory	37	156	193	103	119	134	174	149	119	123	83	45	21	1070
Geometry	74	105	179	32	22	26	23	26	19	16	18	18	21	221
Logic	44	113	157	31	28	33	29	18	34	26	13	19	18	249
Number theory	69	78	147	24	25	32	27	19	19	22	28	16	16	228
Operations research	-	-	-	-	-	-	3	13	37	27	24	30	31	165
Probability/math stat (18)	254	386	640	60	82	113	110	103	127	105	111	117	111	1039
Topology	224	470	694	126	106	115	98	102	78	54	56	48	50	833
Mathematics, general	29	125	154	68	67	73	53	59	62	57	51	53	39	582
Mathematics, other	38	149	187	80	71	67	35	39	41	36	36	33	22	460
COMPUTER/INFORMATION SCIENCES	-	-	-	-	-	-	1	-	-	-	24	85	163	273
Computer sciences	-	-	-	-	-	-	1	-	-	-	24	85	163	273
Information sci/systems(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-

See footnotes at end of table.

Table 2. Citizenship status of science and engineering doctorates by subfield: 1960-89--continued

Field of study	Year of doctorate 1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1980-1989	Total 1960-1989
U.S. CITIZENS												
TOTAL, SCIENCE/ENGINEERING	13410	13544	13292	13403	13250	12946	12869	12819	13208	13158	131899	359224
TOTAL, SCIENCES	12155	12374	12123	12240	12011	11667	11486	11262	11428	11305	118051	312611
PHYSICAL SCIENCES	1884	1956	1991	2064	2071	2043	2014	2080	2098	1965	20166	65506
Physics/astronomy	715	721	706	709	739	698	694	699	722	673	7076	25545
Acoustics	19	10	7	12	14	8	12	13	12	12	119	334
Astronomy(1)	45	43	48	45	33	36	45	33	44	33	405	970
Astronomy/astrophysics(1)	-	-	-	-	-	-	-	-	-	-	-	366
Astrophysics(1)	59	53	43	56	47	46	43	39	52	44	482	1098
Atomic/molecular	57	52	66	46	59	42	47	50	54	42	515	2399
Electron(2)	-	-	-	1	-	2	1	6	2	1	13	13
Electromagnetism(3)	-	-	-	-	-	-	-	-	-	-	-	280
Elementary particle	84	92	82	91	88	99	92	93	104	82	907	3467
Fluids	10	8	7	13	9	11	3	10	10	9	90	460
Mechanics(4)	-	-	-	-	-	-	-	-	-	-	-	77
Nuclear(5)	53	46	37	63	54	60	50	44	53	52	512	2982
Optics	28	37	33	26	36	35	41	35	42	45	358	712
Plasma	47	54	53	53	59	38	45	43	44	35	471	1079
Polymer(2)	-	-	-	5	4	5	6	10	8	4	42	42
Solid state	144	181	173	153	181	155	156	161	143	158	1605	6293
Theoretical physics(6)	-	-	-	-	-	-	-	-	-	-	-	210
Thermal(7)	5	3	-	-	-	-	-	-	-	-	8	202
Physics, general	88	68	76	73	81	83	71	89	74	83	786	2094
Physics, other	76	74	81	72	74	78	82	73	80	73	763	2467
Chemistry	1169	1235	1285	1355	1332	1345	1320	1381	1376	1292	13090	39961
Agricultural/food	-	-	-	-	-	-	-	-	-	-	-	370
Analytical	156	201	163	227	185	242	209	246	238	226	2093	4464
Inorganic	160	162	188	184	199	203	209	188	192	192	1877	5431
Nuclear	12	11	13	10	11	6	15	12	5	6	101	520
Organic	364	396	412	393	413	366	391	377	387	359	3858	14312
Pharmaceutical	30	39	36	49	45	43	39	44	47	50	422	1103
Physical	229	226	270	251	265	243	221	223	227	211	2366	9038
Polymer	31	27	27	38	37	48	47	57	41	43	396	585
Theoretical	40	26	24	36	29	41	29	38	38	28	329	995
Chemistry, general	90	92	86	106	86	92	95	130	131	105	1013	1829
Chemistry, other	57	55	66	61	62	61	65	66	70	72	635	1314
EARTH, ATMOS, & MARINE SCI	512	472	528	483	474	442	422	425	511	527	4796	12525
Applied geo, geo eng(8)	-	-	-	-	-	-	-	-	-	-	-	164
Applied geology(8)	22	15	16	5	6	7	3	2	6	4	86	283
Atmos/meteorol sci, gen(2)	-	-	-	12	4	6	6	6	9	8	51	51
Atmos/meteorol sci, other	34	20	20	20	8	6	5	8	8	11	140	239
Atmospheric dynamics	12	22	15	9	14	13	9	11	15	9	129	199
Atmospheric phys/chem	16	14	17	18	8	15	14	15	10	9	136	194
Environmental sciences(9)	34	43	45	36	37	32	29	22	46	53	377	733
Geochemistry(10)	44	45	41	44	36	37	25	21	36	27	356	770
Geology(11)	-	-	-	82	98	80	94	80	105	126	665	665
Structural geology(11)	19	27	23	-	-	-	-	-	-	-	69	433
Geomorph/glacial geology	12	12	18	8	8	12	9	15	8	9	111	424
Geophysics/seismology(12)	46	54	59	50	45	59	56	38	49	59	515	710
Geophysics(12)	-	-	-	-	-	-	-	-	-	-	-	566
Hydrology/water res(13)	21	12	12	12	13	7	10	11	14	14	126	321
Marine sciences(2)	-	-	-	16	17	20	19	30	23	20	145	145
Marine sciences, other(14)	24	27	33	-	-	-	-	-	-	-	84	150
Meteorology(15)	-	-	-	12	23	14	14	11	20	18	112	645
Mineral, petrol, geochem(10)	-	-	-	-	-	-	-	-	-	-	-	612
Minerology, petrology(10)	45	27	37	20	27	24	14	21	15	32	262	692
Oceanography	74	62	79	67	60	51	55	46	52	55	601	1557
Paleontology	20	19	24	16	32	19	12	17	22	15	196	837
Stratigraphy, sediment	38	37	43	20	12	17	12	20	26	19	244	1158
Geological sciences, gen(16)	-	-	-	9	6	8	7	13	4	9	56	56
Geological sciences, oth(16)	-	-	-	17	17	8	11	23	25	19	120	120
Earth sciences, general(16)	36	25	24	-	-	-	-	-	-	-	85	413
Earth sciences, other(16)	15	11	22	-	-	-	-	-	-	-	48	306
Physical sciences, other(2)	-	-	-	10	3	7	18	15	18	11	82	82
MATHEMATICS	520	482	458	411	407	376	366	345	342	393	4100	17708
Algebra	65	37	46	37	40	32	23	31	30	28	369	2319
Analysis/funct analysis(17)	68	71	62	45	40	53	41	39	46	48	513	3451
Applied mathematics	73	83	72	84	71	54	77	74	66	77	731	2253
Computing theory	11	11	5	9	7	13	4	9	8	9	86	1349
Geometry	27	25	22	24	17	20	21	11	20	26	213	613
Logic	20	17	14	17	14	22	15	8	11	6	144	550
Number theory	21	20	24	10	19	11	14	10	9	17	155	530
Operations research	24	16	19	9	15	13	12	6	17	12	143	308
Probability/math stat (18)	88	101	101	87	102	71	77	63	65	81	836	2515
Topology	48	44	39	33	30	24	20	31	14	21	304	1831
Mathematics, general	43	37	30	30	33	32	41	39	36	38	359	1095
Mathematics, other	32	20	24	26	19	31	21	24	20	30	247	894
COMPUTER/INFORMATION SCIENCES	156	168	143	180	178	189	202	243	284	337	2080	2353
Computer sciences	156	168	143	167	154	149	178	207	244	273	1839	2112
Information sci/systems(2)	-	-	-	13	24	40	24	36	40	64	241	241

See footnotes at end of table.

Table 2. Citizenship status of science and engineering doctorates by subfield: 1960-89--continued

	Year of doctorate													
Field of study	Total 1960-1964	Total 1965-1969	Total 1960-1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-1979
U.S. CITIZENS														
AGRICULTURAL & BIOLOGICAL SCI ..	7529	12165	19694	3359	3643	3527	3556	3210	3473	3497	3396	3522	3674	34857
Agricultural sciences	1707	2070	3777	555	587	533	542	461	563	499	487	530	544	5301
Agric business & mgmt (19) .	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Agronomy	501	515	1016	135	120	90	90	65	73	75	67	80	76	871
Animal breeding/genetics(20)	475	458	933	97	68	51	29	12	17	14	17	17	20	342
Animal nutrition(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Animal sci/nutrition(21) ...	-	1	1	-	-	44	76	76	83	84	69	60	71	563
Dairy science(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Poultry science(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Animal sciences, other(21) .	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fish/wildlife(22)	83	117	200	42	54	48	41	45	52	50	59	53	62	506
Fisheries science(22)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wildlife management(22)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wildlife/range mgmt(22)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Food sciences(23)	-	25	25	24	37	45	40	55	47	53	52	64	62	479
Food engineering(23)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Food sciences, other(23) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Forestry science(24)	129	244	373	58	69	56	59	45	61	56	49	64	62	579
Forest biology(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Forest engineering(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Forest management(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wood science(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Renewable natrl resrces(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Forestry&relatd sci, oth(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Horticulture science	168	212	380	43	48	42	33	21	51	29	39	37	49	392
Plant breeding/genetics(25).	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Plant pathology(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phytopathology(25)	265	283	548	70	66	56	68	56	67	52	57	59	59	610
Plant protectn-pest mgmt(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Plant sciences, other(25) ..	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Soil sciences(26)	-	17	17	19	24	40	51	38	58	31	32	54	30	377
Soil chem/microbio(26)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Soil sciences, other(26) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Agriculture, general	5	17	22	2	-	3	4	-	1	4	-	3	1	18
Agriculture, other	81	181	262	65	101	58	51	48	53	51	46	39	52	564
Biological sciences	5822	10095	15917	2804	3056	2994	3014	2749	2910	2998	2909	2992	3130	29556
Anatomy	204	402	606	106	133	144	119	100	104	122	98	130	139	1195
Biochemistry	1180	1929	3109	470	517	471	502	468	503	493	499	493	501	4917
Biometrics/biostat	48	88	136	29	35	19	26	20	32	37	39	35	36	308
Biophysics	136	382	518	92	82	88	85	92	85	91	106	88	107	916
Botany, other(27)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Botany(27)	455	677	1132	153	180	163	190	136	136	158	144	124	124	1508
Cell biology(28)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cytology(28)	52	152	204	49	50	34	31	38	32	40	34	29	37	374
Ecology	167	264	431	100	113	121	118	133	128	132	150	161	165	1321
Embryology	42	156	198	39	34	33	27	20	25	11	19	15	14	237
Endocrinology(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Entomology	361	555	916	141	177	151	135	126	132	115	116	111	119	1323
Human/animal genetics(29) ..	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Plant genetics(29)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Genetics(29)	292	430	722	110	112	116	93	82	122	105	118	104	119	1081
Human/animal pathology(30) .	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Plant pathology(30)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pathology(30)	87	164	251	28	47	65	48	55	48	77	75	83	71	597
Human/animal pharmacol	285	495	780	119	148	162	120	127	141	176	169	189	195	1546
Human/animal physiol(31) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Animal physiology(31)	348	1065	1413	292	315	295	316	265	293	258	275	276	287	2872
Animal/plant physiol(31) ...	267	-	267	-	-	-	-	-	-	-	-	-	-	-
Plant physiology(31)	113	279	392	78	69	57	66	54	46	46	28	34	42	520
Hydrobiology	31	56	87	24	26	23	10	16	8	13	14	3	10	147
Immunology	-	-	-	-	-	15	47	53	62	74	85	80	122	538
Microbiology(32)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bacteriology(32)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Microbiology/bacteriol(32) .	805	1363	2168	330	354	338	329	304	304	301	266	297	304	3127
Molecular biology	-	75	75	81	98	135	102	116	131	130	111	149	121	1174
Neurosciences	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nutritional sciences(33) ...	14	-	14	-	-	-	-	-	-	58	52	64	81	255
Parasitology	-	-	-	-	-	-	19	19	14	17	13	10	16	108
Toxicology(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zoology, other(34)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zoology(34)	834	1194	2028	317	329	330	301	232	247	242	228	216	228	2670
Biological sci, general	30	135	165	101	123	102	151	152	149	155	145	155	147	1380
Biological sci, other	71	234	305	145	114	132	179	141	168	147	125	146	145	1442

See footnotes at end of table.

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Table 2. Citizenship status of science and engineering doctorates by subfield: 1960-89--continued

Field of study	Year of doctorate 1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1980-1989	Total 1960-1989
U.S. CITIZENS												
AGRICULTURAL & BIOLOGICAL SCI ..	3849	3891	3964	3859	3910	3830	3703	3566	3666	3706	37944	92495
Agricultural sciences	570	594	647	649	625	683	579	584	539	606	6076	15154
Agric business & mgmt (19) .	-	-	-	-	-	-	-	-	-	1	1	1
Agronomy	81	109	100	84	68	91	84	83	69	81	850	2737
Animal breeding/genetics(20)	19	14	20	16	18	17	14	12	14	11	155	1430
Animal nutrition(21)	-	-	-	41	47	53	47	62	37	48	335	335
Animal sci/nutrition(21) ...	83	84	96	-	-	-	-	-	-	-	263	827
Dairy science(21)	-	-	-	-	-	-	-	-	8	9	17	17
Poultry science(21)	-	-	-	-	-	-	-	-	4	5	9	9
Animal sciences, other(21) .	-	-	-	56	55	58	55	49	53	58	384	384
Fish/wildlife(22)	58	62	57	-	-	-	-	-	-	-	177	883
Fisheries science(22)	-	-	-	23	35	33	20	24	24	18	177	177
Wildlife management(22)	-	-	-	24	27	32	17	19	2	-	121	121
Wildlife/range mgmt(22)	-	-	-	-	-	-	-	-	27	42	69	69
Food sciences(23)	52	47	56	73	58	66	54	56	4	1	467	971
Food engineering(23)	-	-	-	-	-	-	-	-	2	1	3	3
Food sciences, other(23) ...	-	-	-	-	-	-	-	-	43	61	104	104
Forestry science(24)	61	67	59	65	80	82	58	69	14	-	555	1507
Forest biology(24)	-	-	-	-	-	-	-	-	17	17	34	34
Forest engineering(24)	-	-	-	-	-	-	-	-	2	-	2	2
Forest management(24)	-	-	-	-	-	-	-	-	10	16	26	26
Wood science(24)	-	-	-	-	-	-	-	-	4	6	10	10
Renewable natrl resrces(24)	-	-	-	-	-	-	-	-	3	6	9	9
Forestry&relatd sci, oth(24)	-	-	-	-	-	-	-	-	14	28	42	42
Horticulture science	44	43	65	45	48	42	38	42	29	48	444	1216
Plant breeding/genetics(25).	-	-	-	52	55	59	42	47	50	41	346	346
Plant pathology(25)	-	-	-	66	32	61	51	48	25	32	315	315
Phytopathology(25)	77	68	86	-	-	-	-	-	-	-	231	1389
Plant protectn-pest mgmt(25)	-	-	-	-	-	-	-	-	1	4	5	5
Plant sciences, other(25) ..	-	-	-	11	14	11	15	8	11	8	78	78
Soil sciences(26)	43	44	50	49	51	49	55	38	11	-	390	784
Soil chem/microbio(26)	-	-	-	-	-	-	-	-	22	19	41	41
Soil sciences, other(26) ...	-	-	-	-	-	-	-	-	23	34	57	57
Agriculture, general	2	1	1	3	1	1	2	1	1	3	16	56
Agriculture, other	50	55	57	41	36	28	27	26	15	8	343	1169
Biological sciences	3279	3297	3317	3210	3285	3147	3124	2982	3127	3100	31868	77341
Anatomy	133	145	144	94	91	115	72	77	72	60	1003	2804
Biochemistry	589	555	549	540	499	472	461	430	438	484	5017	13043
Biometrics/biostat	33	40	49	35	36	31	21	26	29	34	334	778
Biophysics	84	79	72	72	72	58	55	56	71	60	679	2113
Botany, other(27)	-	-	-	103	110	100	100	81	86	88	668	668
Botany(27)	126	126	125	-	-	-	-	-	-	-	377	3017
Cell biology(28)	-	-	-	107	110	87	111	110	95	110	730	730
Cytology(28)	38	41	37	-	-	-	-	-	-	-	116	694
Ecology	155	183	160	164	187	180	155	137	123	131	1575	3327
Embryology	16	19	8	11	13	14	9	4	6	9	109	544
Endocrinology(2)	-	-	-	23	23	14	13	14	17	13	117	117
Entomology	120	108	128	103	110	136	130	88	103	106	1132	3371
Human/animal genetics(29) ..	-	-	-	87	71	89	81	91	90	83	592	592
Plant genetics(29)	-	-	-	10	17	23	16	22	14	10	112	112
Genetics(29)	126	137	151	-	-	-	-	-	-	-	414	2217
Human/animal pathology(30) .	-	-	-	77	73	93	77	95	87	83	585	585
Plant pathology(30)	-	-	-	26	21	27	20	20	23	18	155	155
Pathology(30)	87	83	80	-	-	-	-	-	-	-	250	1098
Human/animal pharmacol	222	248	248	195	202	200	208	190	205	187	2105	4431
Human/animal physiol(31) ...	-	-	-	218	207	198	203	196	182	215	1419	1419
Animal physiology(31)	317	302	269	-	-	-	-	-	-	-	888	5173
Animal/plant physiol(31) ...	-	-	-	-	-	-	-	-	-	-	-	267
Plant physiology(31)	42	53	44	52	59	46	45	47	47	37	472	1384
Hydrobiology	-	-	-	-	-	-	-	-	-	-	-	234
Immunology	110	137	131	133	117	106	124	110	155	129	1252	1790
Microbiology(32)	-	-	-	267	293	231	260	230	266	246	1793	1793
Bacteriology(32)	-	-	-	7	10	15	8	10	5	10	65	65
Microbiology/bacteriol(32) .	313	303	269	-	-	-	-	-	-	-	885	6180
Molecular biology	158	169	194	202	250	240	259	240	279	312	2303	3552
Neurosciences	-	-	108	121	130	136	109	133	137	149	1023	1023
Nutritional sciences(33) ...	75	76	86	85	83	86	94	102	79	85	851	1120
Parasitology	16	14	10	7	27	16	20	13	14	12	149	257
Toxicology(2)	-	-	-	53	92	90	98	103	89	96	621	621
Zoology, other(34)	-	-	-	180	144	126	128	118	141	112	949	949
Zoology(34)	209	179	184	-	-	-	-	-	-	-	572	5270
Biological sci, general	167	167	157	142	135	148	147	152	167	142	1524	3069
Biological sci, other	143	133	114	96	103	70	100	87	107	79	1032	2779

See footnotes at end of table.

Table 2. Citizenship status of science and engineering doctorates by subfield: 1960-89--continued

	Year of doctorate													
Field of study	Total 1960-1964	Total 1965-1969	Total 1960-1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-1979
U.S. CITIZENS														
SOCIAL SCIENCES	4379	7361	11740	2290	2727	2777	2887	2772	2890	2870	2650	2544	2420	26827
Agricultural economics	-	59	59	77	107	103	104	110	91	93	81	90	72	928
Anthropology	327	571	898	187	212	231	289	334	345	377	337	340	330	2982
Area studies	18	70	88	62	67	30	25	26	26	23	16	18	22	315
Criminology(35)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Demography(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Econometrics	51	80	131	18	20	20	20	11	13	19	16	14	14	165
Economics	1584	2315	3899	612	581	628	631	567	628	601	549	517	514	5828
Geography	223	315	538	105	123	136	170	150	154	125	117	119	105	1304
History of science(36)	-	-	-	-	32	36	27	27	25	28	28	21	25	249
International relations	197	318	515	85	113	80	105	101	87	90	77	62	58	858
Linguistics	181	367	548	102	128	116	155	115	145	111	133	118	99	1222
Pol sci/government(37)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Political science(37)	-	-	-	-	-	-	-	1	1	519	502	508	421	1952
Pol sci, public admin(37)	903	1630	2533	443	584	663	652	617	620	32	-	-	-	3611
Public policy studies(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sociology	801	1353	2154	419	489	539	498	514	556	614	619	518	534	5300
Statistics	-	89	89	78	96	51	33	17	20	22	17	24	9	367
Urban studies(38)	-	-	-	-	26	34	42	51	55	67	54	57	62	448
Social sciences, general	23	37	60	21	20	18	35	28	30	28	22	27	26	255
Social sciences, other	71	157	228	81	129	92	101	103	94	121	82	111	129	1043
PSYCHOLOGY	4080	6191	10271	1775	1992	2118	2285	2344	2552	2727	2774	2804	2850	24221
Clinical	1461	2060	3521	533	597	665	717	730	774	866	910	961	985	7738
Cognitive(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Comparative(39)	39	66	105	20	13	21	23	23	21	25	21	20	21	208
Counseling(40)	275	374	649	108	134	143	192	192	219	255	260	264	301	2068
Developmental(41)	97	227	324	78	107	127	138	144	167	182	192	201	210	1546
Educational	252	270	522	82	90	114	104	108	127	117	126	135	147	1150
Exper, compar, physiol(39)	425	7	432	-	-	-	-	-	-	-	-	-	-	-
Experimental(39)	492	1315	1807	346	376	334	310	335	331	339	315	283	277	3246
Indust/organizational(42)	178	232	410	70	61	50	70	72	56	62	75	68	82	666
Physiological(39)	105	375	480	108	122	110	115	109	115	127	125	117	97	1145
Quantitative(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Personality	110	157	267	47	42	45	48	58	61	57	62	39	40	499
Psychometrics	78	83	161	15	33	18	21	21	14	24	16	13	22	197
School	69	111	180	45	69	87	105	85	101	137	142	122	118	1011
Social	370	573	943	134	153	158	194	181	205	186	191	192	204	1798
Psychology, general	87	227	314	109	106	114	123	152	199	187	199	247	159	1595
Psychology, other	42	114	156	80	89	132	125	134	162	163	140	142	187	1354
TOTAL, ENGINEERING	4592	9693	14285	2518	2426	2334	2145	1754	1717	1558	1473	1261	1294	18480
Aeronaut/astronautical(43)	189	526	715	158	145	125	113	101	96	84	58	48	30	958
Agricultural	76	137	213	40	42	45	51	21	34	21	16	21	23	314
Bioengineering/biomed(44)	-	34	34	38	59	64	58	45	63	59	62	60	57	565
Ceramic	82	180	262	41	39	21	21	19	15	12	18	19	16	221
Chemical	903	1434	2337	310	266	255	239	197	190	153	160	127	139	2036
Civil	355	751	1106	166	184	191	176	130	132	124	113	91	99	1406
Communications(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Computer	-	-	-	-	-	-	-	-	60	65	75	40	36	276
Electrical/electronics(45)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Electrical(45)	964	2054	3018	547	550	474	453	338	310	293	259	214	255	3693
Electronics(45)	265	459	724	120	87	93	77	57	46	47	48	30	40	645
Engineering mechanics	327	741	1068	169	131	118	102	95	86	59	58	45	40	903
Engineering physics(46)	186	420	606	35	28	25	24	15	12	17	18	12	10	196
Engineering science(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Environmental health eng(47)	90	191	281	43	39	57	51	39	49	45	49	46	54	472
Fuel tech/petro eng(8)	-	9	9	4	8	4	3	2	1	1	1	-	1	25
Industrial	91	274	365	79	109	104	88	51	62	36	39	35	45	648
Materials science	-	19	19	29	31	52	84	54	76	56	63	71	58	574
Mechanical	540	1242	1782	316	296	278	235	221	188	182	152	149	152	2169
Metallurgical(48)	398	721	1119	168	137	109	88	77	62	53	52	49	42	837
Mining/mineral(49)	-	5	5	4	4	12	4	1	3	1	1	3	2	35
Naval arch/marine engin(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nuclear(46)	-	83	83	85	102	84	94	75	59	78	67	61	60	765
Ocean(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Operations research	-	-	-	-	-	41	67	89	46	53	44	48	38	426
Petroleum(50)	-	-	-	-	-	-	-	2	5	6	5	1	4	23
Polymer(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Systems(51)	-	-	-	-	-	-	-	-	51	44	41	31	45	212
Engineering, general	14	63	77	23	21	24	20	21	19	19	21	22	14	204
Engineering, other	112	350	462	143	148	158	97	104	52	50	53	38	34	877
TOTAL, NON-SCI/ENGINEERING(52)	18778	33516	52294	10348	11293	12335	12942	12593	12793	13187	12483	11960	11940	121874
TOTAL, ALL FIELDS	50317	86544	136861	24915	26758	27479	27913	26343	27081	27269	26119	25291	25464	264632

See footnotes at end of table.

Table 2. Citizenship status of science and engineering doctorates by subfield: 1960-89--continued

Field of study	Year of doctorate 1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1980-1989	Total 1960-1989
U.S. CITIZENS												
SOCIAL SCIENCES	2375	2294	2163	2199	2036	1982	2013	1856	1861	1777	20556	59123
Agricultural economics	96	91	94	79	73	83	78	69	80	79	822	1809
Anthropology	332	320	289	326	281	302	312	287	264	250	2963	6843
Area studies	19	12	16	15	15	10	10	11	12	10	130	533
Criminology(35)	26	32	35	43	32	29	24	23	32	28	304	304
Demography(2)	-	-	-	13	8	12	7	10	6	13	69	69
Econometrics	14	7	13	9	12	14	9	9	7	6	100	396
Economics	489	521	431	496	432	425	464	410	421	418	4507	14234
Geography	104	83	70	86	77	78	74	75	86	62	795	2637
History of science(36)	21	22	25	12	20	17	17	23	21	15	193	442
International relations	47	60	43	52	51	52	43	50	40	49	487	1860
Linguistics	125	117	119	105	95	107	105	107	80	88	1048	2818
Pol sci/government(37)	-	-	-	310	303	276	274	256	229	255	1903	1903
Political science(37)	423	348	351	-	-	-	-	-	-	-	1122	3074
Pol sci, public admin(37)	-	-	-	-	-	-	-	-	-	-	-	6144
Public policy studies(2)	-	-	-	53	43	57	65	63	55	60	396	396
Sociology	495	495	467	419	420	363	371	307	314	281	3932	11386
Statistics	20	19	15	18	13	16	22	14	19	17	173	629
Urban studies(38)	54	50	58	42	50	42	27	38	47	27	435	883
Social sciences, general	25	16	26	13	8	9	20	17	14	13	161	476
Social sciences, other	85	101	111	108	103	90	91	87	134	106	1016	2287
PSYCHOLOGY	2859	3111	2876	3044	2935	2805	2766	2747	2666	2600	28409	62901
Clinical	1037	1214	1104	1161	1113	1098	1072	1069	966	1004	10838	22097
Cognitive(2)	-	-	-	60	66	73	64	69	69	68	469	469
Comparative(39)	8	11	11	11	12	11	13	9	7	5	98	411
Counseling(40)	292	331	333	413	444	414	417	464	457	464	4029	6746
Developmental(41)	198	195	181	211	192	163	168	182	165	134	1789	3659
Educational	126	170	131	134	183	117	92	79	93	81	1206	2878
Exper, compar, physiol(39)	-	-	-	-	-	-	-	-	-	-	-	432
Experimental(39)	287	268	223	188	163	150	133	135	123	131	1801	6854
Indust/organizational(42)	64	83	79	86	99	97	107	102	110	94	921	1997
Physiological(39)	103	96	86	84	70	69	71	61	78	61	779	2404
Quantitative(2)	-	-	-	14	17	14	21	11	11	8	96	96
Personality	42	48	35	30	23	19	15	24	16	23	275	1041
Psychometrics	19	24	8	10	6	8	11	9	10	5	110	468
School	172	130	158	114	83	89	106	88	104	98	1142	2333
Social	182	166	161	175	145	151	122	120	131	108	1461	4202
Psychology, general	159	201	188	213	175	172	195	186	221	198	1908	3817
Psychology, other	170	174	178	140	144	160	159	139	105	118	1487	2997
TOTAL, ENGINEERING	1255	1170	1169	1163	1239	1279	1383	1557	1780	1853	13848	46613
Aeronaut/astronautical(43)	33	50	34	40	46	53	40	64	67	74	501	2174
Agricultural	27	18	21	18	27	24	24	34	42	50	285	812
Bioengineering/biomed(44)	54	48	48	57	46	48	50	50	77	80	558	1157
Ceramic	14	11	11	13	15	12	14	25	14	17	146	629
Chemical	124	128	136	162	167	218	219	280	335	351	2120	6493
Civil	98	105	110	124	124	114	122	146	168	165	1276	3788
Communications(2)	-	-	-	12	7	10	10	6	12	10	67	67
Computer	28	29	21	29	25	13	26	23	27	36	257	533
Electrical/electronics(45)	-	-	-	181	251	246	291	291	358	390	2008	2008
Electrical(45)	228	201	196	29	4	1	-	-	-	-	659	7370
Electronics(45)	42	45	45	8	-	-	-	-	-	-	140	1509
Engineering mechanics	42	38	48	24	38	32	39	39	34	34	368	2339
Engineering physics(46)	12	12	11	8	6	8	10	13	6	10	96	898
Engineering science(2)	-	-	-	15	10	14	17	12	16	10	94	94
Environmental health eng(47)	52	52	35	30	34	16	17	16	20	22	294	1047
Fuel tech/petro eng(8)	-	-	-	-	-	-	-	-	-	-	-	34
Industrial	34	35	38	27	30	29	33	44	40	51	361	1374
Materials science	68	55	63	69	76	89	82	108	119	118	847	1440
Mechanical	142	120	150	121	125	161	170	201	222	224	1636	5587
Metallurgical(48)	57	33	34	35	31	43	23	43	39	37	375	2331
Mining/mineral(49)	1	4	5	9	5	6	7	11	6	13	67	107
Naval arch/marine engin(2)	-	-	-	-	2	2	3	4	1	1	13	13
Nuclear(46)	57	61	58	35	58	38	40	30	56	32	465	1313
Ocean(2)	-	-	-	2	4	3	9	5	6	6	35	35
Operations research	43	40	26	21	29	24	29	25	24	28	289	715
Petroleum(50)	8	3	8	3	6	6	5	6	12	11	68	91
Polymer(2)	-	-	-	9	9	16	17	8	11	19	89	89
Systems(51)	35	32	20	24	24	20	16	18	17	15	221	433
Engineering, general	24	12	13	10	6	3	21	21	18	16	144	425
Engineering, other	32	38	38	48	34	30	49	34	33	33	369	1708
TOTAL, NON-SCI/ENGINEERING(52)	11811	11517	11099	10956	10777	10422	10211	10160	10065	10014	107032	281200
TOTAL, ALL FIELDS	25221	25061	24391	24359	24027	23368	23080	22979	23273	23172	238931	640424

See footnotes at end of table.

Table 2. Citizenship status of science and engineering doctorates by subfield: 1960-89--continued

				Year of doctorate										
Field of study	Total 1960-1964	Total 1965-1969	Total 1960-1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-1979
U.S. CITIZENS AND NON-U.S. PERMANENT RESIDENTS														
TOTAL, SCIENCE/ENGINEERING	32823	56361	89184	15809	16956	16792	16550	15150	15557	15188	14626	14323	14469	155420
TOTAL, SCIENCES	27868	45530	73398	12857	13996	13834	13844	12879	13420	13239	12827	12737	12852	132485
PHYSICAL SCIENCES	8381	12968	21349	3474	3514	3211	2947	2596	2553	2392	2262	2161	2205	27315
Physics/astronomy	3035	5416	8451	1436	1503	1403	1314	1054	1034	987	919	868	870	11388
Acoustics	43	43	86	23	17	19	14	13	11	9	9	13	11	139
Astronomy(1)	-	33	33	42	54	59	54	51	52	68	61	63	52	556
Astronomy/astrophysics(1)	118	261	379	-	-	-	-	-	-	-	-	-	-	-
Astrophysics(1)	-	61	61	53	50	60	58	68	58	63	48	64	49	571
Atomic/molecular	371	574	945	139	109	139	107	106	112	99	89	76	66	1042
Electron(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Electromagnetism(3)	96	108	204	17	16	10	11	7	10	11	9	9	4	104
Elementary particle	455	861	1316	208	237	159	180	114	104	100	108	108	99	1417
Fluids	81	159	240	19	20	28	24	17	16	19	12	10	14	179
Mechanics(4)	19	36	55	6	6	5	5	2	2	3	-	-	-	29
Nuclear(5)	572	788	1360	191	205	209	151	118	103	73	79	61	82	1272
Optics	30	60	90	28	23	28	29	19	26	44	27	26	36	286
Plasma	-	55	55	76	74	78	63	48	44	66	62	59	48	618
Polymer(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Solid state	732	1529	2261	367	394	349	344	276	266	228	201	196	195	2816
Theoretical physics(6)	220	-	220	-	-	-	-	-	-	-	-	-	-	-
Thermal(7)	27	81	108	15	16	13	14	13	8	3	5	8	6	101
Physics, general	77	290	367	117	115	98	137	94	112	105	115	97	119	1109
Physics, other	194	477	671	135	167	149	123	108	110	96	94	78	89	1149
Chemistry	5346	7552	12898	2038	2011	1808	1633	1542	1519	1405	1343	1293	1335	15927
Agricultural/food	119	171	290	48	49	17	7	11	5	11	5	4	9	166
Analytical	385	581	966	150	169	141	123	136	127	136	166	164	189	1501
Inorganic	528	939	1467	288	287	269	249	186	212	213	172	179	182	2237
Nuclear	115	116	231	31	32	20	24	27	20	22	21	13	12	222
Organic	2296	3196	5492	784	747	670	580	576	524	438	430	393	404	5546
Pharmaceutical	159	191	350	46	57	41	45	60	59	48	41	45	37	479
Physical	1540	1998	3538	513	453	429	400	342	347	308	294	260	289	3635
Polymer	-	-	-	-	-	-	12	23	33	33	42	45	45	233
Theoretical	87	161	248	58	60	61	47	45	40	43	30	38	42	464
Chemistry, general	50	73	123	59	68	79	82	93	101	98	89	94	80	843
Chemistry, other	67	126	193	61	89	81	64	43	51	55	53	58	46	601
EARTH, ATMOS, & MARINE SCI	1181	1788	2969	425	494	525	547	500	527	538	580	540	564	5240
Applied geo, geo eng(8)	89	87	176	-	-	-	-	-	-	-	-	-	-	-
Applied geology(8)	-	18	18	14	27	34	19	20	15	17	17	14	17	194
Atmos/meteorol sci, gen(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Atmos/meteorol sci, other	-	-	-	-	-	-	-	-	-	16	35	30	31	112
Atmospheric dynamics	-	-	-	-	-	-	-	-	-	11	26	19	21	77
Atmospheric phys/chem	-	-	-	-	-	-	-	-	-	14	14	20	15	63
Environmental sciences(9)	-	-	-	-	-	17	53	47	69	55	48	41	49	379
Geochemistry(10)	-	33	33	32	47	30	35	38	40	42	53	47	50	414
Geology(11)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Structural geology(11)	60	120	180	11	27	20	18	12	15	21	19	26	23	192
Geomorph/glacial geology	41	63	104	15	22	18	26	20	29	28	21	23	14	216
Geophysics/seismology(12)	-	-	-	-	-	-	-	-	-	31	56	46	70	203
Geophysics(12)	101	149	250	51	61	66	54	65	70	22	-	-	-	389
Hydrology/water res(13)	11	38	49	16	23	10	26	10	17	11	15	22	17	167
Marine sciences(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marine sciences, other(14)	-	-	-	-	-	-	-	-	-	-	9	28	29	66
Meteorology(15)	84	174	258	48	57	74	52	50	33	18	-	-	-	332
Mineral, petrol, geochem(10)	323	316	639	-	-	-	-	-	-	-	-	-	-	-
Minerology, petrology(10)	-	42	42	50	43	54	39	32	31	46	55	34	32	416
Oceanography	56	185	241	63	50	74	80	74	78	78	100	84	79	760
Paleontology	119	187	306	39	31	30	43	39	39	40	26	29	34	350
Stratigraphy, sediment	268	245	513	47	64	51	49	44	41	48	32	29	31	436
Geological sciences, gen(16)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Geological sciences, oth(16)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Earth sciences, general(16)	13	66	79	22	22	24	31	30	25	22	34	34	32	276
Earth sciences, other(16)	16	65	81	17	20	23	22	19	25	18	20	14	20	198
Physical sciences, other(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MATHEMATICS	1752	3747	5499	1076	1074	1095	1032	947	923	803	744	666	603	8963
Algebra	233	614	847	177	184	150	131	107	106	97	76	74	78	1180
Analysis/funct analysis(17)	500	961	1461	215	234	215	210	174	144	116	119	98	89	1614
Applied mathematics	219	499	718	123	103	96	91	101	86	80	95	82	79	936
Computing theory	39	170	209	111	124	142	193	160	136	131	89	48	22	1156
Geometry	75	109	184	34	28	28	26	30	22	16	19	18	21	242
Logic	44	114	158	32	28	33	30	18	34	27	13	19	18	252
Number theory	70	83	153	24	27	33	27	19	21	23	28	17	16	235
Operations research	-	-	-	-	-	-	3	13	40	32	31	34	33	186
Probability/math stat (18)	273	421	694	69	88	126	127	113	141	117	126	130	127	1164
Topology	228	484	712	131	109	121	101	106	82	59	57	50	53	869
Mathematics, general	32	134	166	72	76	80	57	64	69	63	54	59	45	639
Mathematics, other	39	158	197	88	73	71	36	42	42	42	37	37	22	490
COMPUTER/INFORMATION SCIENCES	-	-	-	-	-	-	1	-	-	-	25	90	175	291
Computer sciences	-	-	-	-	-	-	1	-	-	-	25	90	175	291
Information sci/systems(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-

See footnotes at end of table.

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Table 2. Citizenship status of science and engineering doctorates by subfield: 1960-89--continued

	Year of doctorate											
Field of study	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1980-1989	Total 1960-1989
U.S. CITIZENS AND NON-U.S. PERMANENT RESIDENTS												
TOTAL, SCIENCE/ENGINEERING	14363	14437	14146	14301	14085	13875	13856	13905	14337	14264	141569	386173
TOTAL, SCIENCES	12809	12966	12681	12819	12572	12281	12130	11993	12190	12050	124491	330374
PHYSICAL SCIENCES	2035	2103	2110	2184	2190	2178	2147	2227	2235	2111	21520	70184
Physics/astronomy	766	774	741	760	775	746	734	755	784	735	7570	27409
Acoustics	21	12	8	12	15	8	12	13	13	12	126	351
Astronomy(1)	48	44	48	45	33	36	45	33	50	36	418	1007
Astronomy/astrophysics(1) ..	-	-	-	-	-	-	-	-	-	-	-	379
Astrophysics(1)	61	56	44	58	48	48	46	40	53	45	499	1131
Atomic/molecular	60	54	73	53	61	43	47	55	57	47	550	2537
Electron(2)	-	-	-	1	-	3	1	6	2	2	15	15
Electromagnetism(3)	-	-	-	-	-	-	-	-	-	-	-	308
Elementary particle	91	98	84	96	95	105	97	104	113	91	974	3707
Fluids	10	9	9	13	9	11	3	11	11	10	96	515
Mechanics(4)	-	-	-	-	-	-	-	-	-	-	-	84
Nuclear(5)	57	47	39	70	58	64	54	50	55	58	552	3184
Optics	33	41	33	31	40	36	42	36	51	48	391	767
Plasma	51	55	54	54	59	40	47	49	48	41	498	1171
Polymer(2)	-	-	-	6	4	8	7	10	9	4	48	48
Solid state	155	194	184	167	190	169	169	173	153	175	1729	6806
Theoretical physics(6)	-	-	-	-	-	-	-	-	-	-	-	220
Thermal(7)	5	4	-	-	-	-	-	-	-	-	9	218
Physics, general	95	83	81	76	87	95	81	99	86	92	875	2351
Physics, other	79	77	84	78	76	80	83	76	83	74	790	2610
Chemistry	1269	1329	1369	1424	1415	1432	1413	1472	1451	1376	13950	42775
Agricultural/food	-	-	-	-	-	-	-	-	-	-	-	456
Analytical	167	209	171	233	190	248	214	258	250	230	2170	4637
Inorganic	167	168	196	190	205	211	215	197	202	202	1953	5657
Nuclear	12	11	15	10	12	6	15	12	5	6	104	557
Organic	401	429	432	418	441	402	418	400	399	386	4126	15164
Pharmaceutical	36	44	42	56	48	48	48	47	51	54	474	1303
Physical	244	239	289	259	281	248	236	239	238	228	2501	9674
Polymer	44	40	33	44	48	59	54	64	49	49	484	717
Theoretical	40	27	24	38	30	43	30	39	38	28	337	1049
Chemistry, general	98	100	97	111	93	101	110	147	146	120	1123	2089
Chemistry, other	60	62	70	65	67	66	73	69	73	73	678	1472
EARTH, ATMOS, & MARINE SCI	538	488	557	513	499	474	446	450	542	557	5064	13273
Applied geo, geo eng(8)	-	-	-	-	-	-	-	-	-	-	-	176
Applied geology(8)	22	16	17	6	6	7	4	2	6	4	90	302
Atmos/meteorol sci, gen(2) .	-	-	-	13	4	6	6	7	10	8	54	54
Atmos/meteorol sci, other ..	37	21	23	21	8	6	5	8	9	12	150	262
Atmospheric dynamics	14	23	17	11	17	15	9	12	18	11	147	224
Atmospheric phys/chem	18	14	17	19	9	15	16	15	11	11	145	208
Environmental sciences(9) ..	37	45	45	41	39	35	30	24	48	57	401	780
Geochemistry(10)	44	47	43	45	38	39	30	22	38	28	374	821
Geology(11)	-	-	-	83	100	86	100	84	110	129	692	692
Structural geology(11)	19	27	24	-	-	-	-	-	-	-	70	442
Geomorph/glacial geology ...	12	12	19	9	8	12	9	16	8	10	115	435
Geophysics/seismology(12) ..	52	59	66	56	50	65	57	45	53	60	563	766
Geophysics(12)	-	-	-	-	-	-	-	-	-	-	-	639
Hydrology/water res(13)	22	12	16	12	14	9	12	11	14	14	136	352
Marine sciences(2)	-	-	-	18	17	20	19	31	23	20	148	148
Marine sciences, other(14) .	25	27	35	-	-	-	-	-	-	-	87	153
Meteorology(15)	-	-	-	13	23	17	15	11	20	18	117	707
Mineral, petrol, geochem(10)	-	-	-	-	-	-	-	-	-	-	-	639
Minerology, petrology(10) ..	46	27	38	20	27	25	15	22	16	32	268	726
Oceanography	77	63	80	71	62	52	57	49	55	64	630	1631
Paleontology	20	19	24	17	32	20	12	17	22	16	199	855
Stratigraphy, sediment	38	37	44	20	14	20	13	21	27	21	255	1204
Geological sciences, gen(16)	-	-	-	11	9	8	7	13	4	10	62	62
Geological sciences, oth(16)	-	-	-	17	18	8	11	25	28	20	127	127
Earth sciences, general(16).	38	27	27	-	-	-	-	-	-	-	92	447
Earth sciences, other(16) ..	17	12	22	-	-	-	-	-	-	-	51	330
Physical sciences, other(2).	-	-	-	10	4	9	19	15	22	12	91	91
MATHEMATICS	582	525	499	457	443	418	402	396	386	428	4536	18998
Algebra	68	42	48	39	43	34	24	32	33	30	393	2420
Analysis/funct analysis(17).	74	75	66	48	41	56	48	43	53	54	558	3633
Applied mathematics	82	90	84	93	78	64	81	82	76	83	813	2467
Computing theory	12	13	7	9	8	13	5	11	8	9	95	1460
Geometry	31	27	24	26	17	21	24	11	22	28	231	657
Logic	23	17	16	17	16	24	17	10	12	6	158	568
Number theory	22	21	25	12	20	11	15	11	11	17	165	553
Operations research	28	20	21	10	15	14	17	12	18	13	168	354
Probability/math stat (18) .	111	112	109	102	115	88	81	79	73	91	961	2819
Topology	51	45	40	34	31	26	21	31	17	24	320	1901
Mathematics, general	47	41	33	34	36	36	45	46	42	41	401	1206
Mathematics, other	33	22	26	33	23	31	24	28	21	32	273	960
COMPUTER/INFORMATION SCIENCES ..	169	188	155	207	195	213	249	275	326	394	2371	2662
Computer sciences	169	188	155	189	168	170	220	235	277	320	2091	2382
Information sci/systems(2) .	-	-	-	18	27	43	29	40	49	74	280	280

See footnotes at end of table.

Table 2. Citizenship status of science and engineering doctorates by subfield: 1960-89--continued

Field of study	Total 1960-1964	Total 1965-1969	Total 1960-1969	Year of doctorate 1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-1979
U.S. CITIZENS AND NON-U.S. PERMANENT RESIDENTS														
AGRICULTURAL & BIOLOGICAL SCI ..	7808	12805	20613	3577	3927	3834	3875	3483	3733	3696	3585	3707	3835	37252
Agricultural sciences	1776	2203	3979	602	663	618	617	526	633	536	514	573	573	5855
Agric business & mgmt (19) .	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Agronomy	523	548	1071	147	134	100	100	68	80	77	71	85	78	940
Animal breeding/genetics(20)	491	479	970	103	72	55	30	14	17	14	17	17	21	360
Animal nutrition(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Animal sci/nutrition(21) ...	-	1	1	-	-	50	82	90	94	92	74	64	76	622
Dairy science(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Poultry science(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Animal sciences, other(21) .	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fish/wildlife(22)	83	120	203	43	57	48	44	47	58	50	61	53	62	523
Fisheries science(22)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wildlife management(22)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wildlife/range mgmt(22)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Food sciences(23)	-	27	27	31	52	61	64	71	73	66	59	81	70	628
Food engineering(23)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Food sciences, other(23) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Forestry science(24)	137	255	392	63	72	63	63	49	64	57	53	66	64	614
Forest biology(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Forest engineering(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Forest management(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wood science(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Renewable natrl resrces(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Forestry&relatd sci, oth(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Horticulture science	179	228	407	47	57	56	35	27	54	30	39	41	51	437
Plant breeding/genetics(25).	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Plant pathology(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phytopathology(25)	274	305	579	74	77	65	77	62	71	57	57	60	63	663
Plant protectn-pest mgmt(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Plant sciences, other(25) ..	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Soil sciences(26)	-	20	20	21	30	45	60	43	66	36	33	57	33	424
Soil chem/microbio(26)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Soil sciences, other(26) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Agriculture, general	6	21	27	2	-	3	4	1	1	5	-	3	1	20
Agriculture, other	83	199	282	71	112	72	58	54	55	52	50	46	54	624
Biological sciences	6032	10602	16634	2975	3264	3216	3258	2957	3100	3160	3071	3134	3262	31397
Anatomy	208	418	626	111	141	151	123	107	109	127	102	132	145	1248
Biochemistry	1249	2068	3317	509	580	523	567	512	553	535	536	529	540	5384
Biometrics/biostat	49	96	145	34	37	23	30	23	32	39	42	38	41	339
Biophysics	140	403	543	101	88	93	93	98	89	103	114	98	114	991
Botany, other(27)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Botany(27)	467	696	1163	158	186	173	194	144	138	163	145	127	125	1553
Cell biology(28)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cytology(28)	57	162	219	52	51	36	34	40	35	43	34	29	39	393
Ecology	171	270	441	102	113	123	121	135	131	136	152	162	168	1343
Embryology	44	158	202	39	35	33	28	20	25	11	19	15	14	239
Endocrinology(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Entomology	369	582	951	148	187	163	147	135	135	118	119	120	124	1396
Human/animal genetics(29) ..	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Plant genetics(29)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Genetics(29)	307	457	764	117	119	132	103	92	127	108	126	109	122	1155
Human/animal pathology(30) .	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Plant pathology(30)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pathology(30)	90	178	268	32	54	76	61	63	55	84	83	86	73	667
Human/animal pharmacol	298	535	833	129	165	172	139	142	153	186	183	198	196	1663
Human/animal physiol(31) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Animal physiology(31)	360	1108	1468	307	333	317	334	282	311	266	287	284	296	3017
Animal/plant physiol(31) ...	274	-	274	-	-	-	-	-	-	-	-	-	-	-
Plant physiology(31)	119	296	415	81	73	61	73	56	52	51	30	37	43	557
Hydrobiology	31	58	89	27	26	23	10	17	8	13	14	3	10	151
Immunology	-	-	-	-	-	16	48	62	66	79	90	86	131	578
Microbiology(32)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bacteriology(32)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Microbiology/bacteriol(32) .	833	1431	2264	354	376	359	358	330	332	320	283	310	317	3339
Molecular biology	-	80	80	88	104	145	108	128	140	138	118	158	124	1251
Neurosciences	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nutritional sciences(33) ...	18	-	18	-	-	-	-	-	-	68	60	70	90	288
Parasitology	-	-	-	-	-	-	19	22	15	18	15	10	16	115
Toxicology(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zoology, other(34)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zoology(34)	843	1222	2065	322	338	340	313	234	250	243	236	219	233	2728
Biological sci, general	30	138	168	107	133	109	165	158	157	159	154	162	152	1456
Biological sci, other	75	246	321	157	125	148	190	157	187	152	129	152	149	1546

See footnotes at end of table.

Table 2. Citizenship status of science and engineering doctorates by subfield: 1960-89--continued

	Year of doctorate											
Field of study	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1980-1989	Total 1960-1989
U.S. CITIZENS AND NON-U.S. PERMANENT RESIDENTS												
AGRICULTURAL & BIOLOGICAL SCI	4035	4050	4104	4009	4059	3981	3868	3774	3929	3928	39737	97602
Agricultural sciences	605	629	670	685	660	726	627	632	610	651	6495	16329
Agric business & mgmt (19)	-	-	-	-	-	-	-	-	-	1	1	1
Agronomy	86	113	103	87	75	93	89	88	79	85	898	2909
Animal breeding/genetics(20)	20	15	20	18	19	18	15	14	15	12	166	1496
Animal nutrition(21)	-	-	-	43	50	53	49	64	39	52	350	350
Animal sci/nutrition(21)	86	89	100	-	-	-	-	-	-	-	275	898
Dairy science(21)	-	-	-	-	-	-	-	-	8	9	17	17
Poultry science(21)	-	-	-	-	-	-	-	-	7	5	12	12
Animal sciences, other(21)	-	-	-	59	57	64	60	52	59	63	414	414
Fish/wildlife(22)	59	62	57	-	-	-	-	-	-	-	178	904
Fisheries science(22)	-	-	-	27	36	33	22	25	26	19	188	188
Wildlife management(22)	-	-	-	24	28	33	17	21	2	-	125	125
Wildlife/range mgmt(22)	-	-	-	-	-	-	-	-	29	42	71	71
Food sciences(23)	64	53	63	89	62	79	62	70	5	1	548	1203
Food engineering(23)	-	-	-	-	-	-	-	-	5	2	7	7
Food sciences, other(23)	-	-	-	-	-	-	-	-	55	72	127	127
Forestry science(24)	61	70	60	68	81	83	60	72	14	-	569	1575
Forest biology(24)	-	-	-	-	-	-	-	-	17	18	35	35
Forest engineering(24)	-	-	-	-	-	-	-	-	2	-	2	2
Forest management(24)	-	-	-	-	-	-	-	-	12	16	28	28
Wood science(24)	-	-	-	-	-	-	-	-	4	6	10	10
Renewable natrl resrces(24)	-	-	-	-	-	-	-	-	4	7	11	11
Forestry&relatd sci, oth(24)	-	-	-	-	-	-	-	-	15	30	45	45
Horticulture science	45	48	67	47	49	46	40	48	34	52	476	1320
Plant breeding/genetics(25)	-	-	-	52	57	63	45	51	53	43	364	364
Plant pathology(25)	-	-	-	67	34	63	55	50	27	34	330	330
Phytopathology(25)	79	71	88	-	-	-	-	-	-	-	238	1480
Plant protectn-pest mgmt(25)	-	-	-	-	-	-	-	-	1	5	6	6
Plant sciences, other(25)	-	-	-	11	16	12	15	9	13	8	84	84
Soil sciences(26)	47	49	52	49	55	54	65	41	12	-	424	868
Soil chem/microbio(26)	-	-	-	-	-	-	-	-	23	20	43	43
Soil sciences, other(26)	-	-	-	-	-	-	-	-	33	36	69	69
Agriculture, general	2	1	2	3	1	2	2	1	1	4	19	66
Agriculture, other	56	58	58	41	40	30	31	26	16	9	365	1271
Biological sciences	3430	3421	3434	3324	3399	3255	3241	3142	3319	3277	33242	81273
Anatomy	137	148	146	95	92	121	72	81	76	65	1033	2907
Biochemistry	608	586	583	570	525	500	480	449	469	518	5288	13989
Biometrics/biostat	36	40	50	38	39	33	21	28	34	40	359	843
Biophysics	94	85	74	74	76	58	58	61	72	63	715	2249
Botany, other(27)	-	-	-	104	113	100	104	85	89	91	686	686
Botany(27)	129	128	127	-	-	-	-	-	-	-	384	3100
Cell biology(28)	-	-	-	108	114	91	114	116	98	117	758	758
Cytology(28)	42	42	37	-	-	-	-	-	-	-	121	733
Ecology	159	185	162	168	190	182	157	140	129	135	1607	3391
Embryology	18	19	9	11	13	15	9	4	7	9	114	555
Endocrinology(2)	-	-	-	25	28	14	13	14	17	13	124	124
Entomology	127	115	131	107	113	136	135	88	107	110	1169	3516
Human/animal genetics(29)	-	-	-	90	74	92	84	96	97	86	619	619
Plant genetics(29)	-	-	-	10	18	25	17	22	14	10	116	116
Genetics(29)	132	140	157	-	-	-	-	-	-	-	429	2348
Human/animal pathology(30)	-	-	-	81	75	95	78	107	94	89	619	619
Plant pathology(30)	-	-	-	26	21	28	21	23	25	19	163	163
Pathology(30)	95	85	83	-	-	-	-	-	-	-	263	1198
Human/animal pharmacol	239	259	255	198	209	208	217	202	214	193	2194	4690
Human/animal physiol(31)	-	-	-	223	214	207	211	208	189	228	1480	1480
Animal physiology(31)	323	311	276	-	-	-	-	-	-	-	910	5395
Animal/plant physiol(31)	-	-	-	-	-	-	-	-	-	-	-	274
Plant physiology(31)	46	56	48	55	60	46	46	52	54	39	502	1474
Hydrobiology	-	-	-	-	-	-	-	-	-	-	-	240
Immunology	119	141	136	137	121	113	129	113	164	136	1309	1887
Microbiology(32)	-	-	-	277	303	241	274	241	284	264	1884	1884
Bacteriology(32)	-	-	-	8	11	15	10	10	5	10	69	69
Microbiology/bacteriol(32)	333	316	281	-	-	-	-	-	-	-	930	6533
Molecular biology	165	176	197	208	256	244	268	249	298	330	2391	3722
Neurosciences	-	-	115	125	132	141	112	139	143	158	1065	1065
Nutritional sciences(33)	79	81	92	93	88	88	100	112	92	93	918	1224
Parasitology	17	14	10	7	27	18	20	14	16	13	156	271
Toxicology(2)	-	-	-	56	94	90	100	110	95	97	642	642
Zoology, other(34)	-	-	-	184	147	128	132	120	144	113	968	968
Zoology(34)	212	181	187	-	-	-	-	-	-	-	580	5373
Biological sci, general	173	175	163	146	142	154	153	160	177	151	1594	3218
Biological sci, other	147	138	115	100	104	72	106	98	116	87	1083	2950

See footnotes at end of table.

Table 2. Citizenship status of science and engineering doctorates by subfield: 1960-89--continued

	Year of doctorate													
Field of study	Total 1960-1964	Total 1965-1969	Total 1960-1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-1979
U.S. CITIZENS AND NON-U.S. PERMANENT RESIDENTS														
SOCIAL SCIENCES	4587	7910	12497	2489	2945	3000	3107	2962	3077	3042	2810	2715	2575	28722
Agricultural economics	-	66	66	81	119	111	120	118	103	100	87	93	79	1011
Anthropology	333	597	930	195	224	241	299	345	353	389	350	354	346	3096
Area studies	18	74	92	64	73	32	27	29	31	26	16	21	22	341
Criminology(35)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Demography(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Econometrics	55	96	151	21	23	27	21	13	18	22	18	15	16	194
Economics	1671	2515	4186	674	638	684	708	620	674	646	592	569	564	6369
Geography	239	344	583	114	137	147	179	156	164	133	129	128	109	1396
History of science(36)	-	-	-	-	32	36	29	30	26	31	28	23	25	260
International relations	217	367	584	91	126	95	110	108	95	96	81	72	64	938
Linguistics	196	404	600	114	140	130	171	128	159	119	145	127	111	1344
Pol sci/government(37)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Political science(37)	-	-	-	-	-	-	-	1	1	541	534	536	435	2048
Pol sci, public admin(37)	932	1724	2656	471	622	705	684	659	657	33	-	-	-	3831
Public policy studies(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sociology	828	1420	2248	457	518	573	528	544	583	649	648	543	563	5606
Statistics	-	97	97	90	110	66	44	20	23	22	17	29	12	433
Urban studies(38)	-	-	-	-	29	35	44	55	60	80	58	63	69	493
Social sciences, general	24	38	62	21	20	20	36	29	31	30	22	27	27	263
Social sciences, other	74	168	242	96	134	98	107	107	99	125	85	115	133	1099
PSYCHOLOGY	4159	6312	10471	1816	2042	2169	2335	2391	2607	2768	2821	2858	2895	24702
Clinical	1498	2095	3593	542	608	669	727	740	790	872	920	974	993	7835
Cognitive(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Comparative(39)	39	68	107	21	15	21	23	23	21	26	22	20	21	213
Counseling(40)	277	378	655	110	139	146	195	194	221	258	261	267	306	2097
Developmental(41)	97	235	332	80	110	133	142	149	171	184	198	203	214	1584
Educational	254	276	530	86	95	119	109	113	127	121	128	140	151	1189
Exper, compar, physiol(39)	432	7	439	-	-	-	-	-	-	-	-	-	-	-
Experimental(39)	501	1340	1841	353	380	340	319	341	337	342	321	290	282	3305
Indust/organizational(42)	180	236	416	72	62	52	70	74	59	64	78	71	85	687
Physiological(39)	108	386	494	111	123	114	117	111	116	130	126	120	98	1166
Quantitative(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Personality	112	157	269	47	45	48	49	58	62	57	62	40	40	508
Psychometrics	82	88	170	16	35	20	24	21	15	25	17	14	22	209
School	69	111	180	45	69	89	107	88	102	141	143	124	119	1027
Social	380	583	963	140	159	162	198	186	214	191	195	196	207	1848
Psychology, general	88	235	323	111	111	119	128	157	206	193	206	250	165	1646
Psychology, other	42	117	159	82	91	137	127	136	166	164	144	149	192	1388
TOTAL, ENGINEERING	4955	10831	15786	2952	2960	2958	2706	2271	2137	1949	1799	1586	1617	22935
Aeronaut/astronautical(43)	208	591	799	181	171	157	138	118	112	92	68	62	45	1144
Agricultural	82	150	232	42	49	50	55	27	38	24	17	24	27	353
Bioengineering/biomed(44)	-	36	36	44	63	70	66	56	68	65	66	67	62	627
Ceramic	91	190	281	44	42	24	23	20	18	18	25	22	18	254
Chemical	960	1563	2523	392	328	326	317	273	255	202	205	173	185	2656
Civil	401	901	1302	224	272	276	247	187	174	174	157	118	120	1949
Communications(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Computer	-	-	-	-	-	-	-	-	69	78	93	53	48	341
Electrical/electronics(45)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Electrical(45)	1039	2266	3305	621	652	587	544	426	370	367	323	266	321	4477
Electronics(45)	287	539	826	139	102	119	93	74	58	55	59	37	52	788
Engineering mechanics	362	878	1240	203	180	184	147	137	119	77	73	55	51	1226
Engineering physics(46)	195	467	662	38	34	34	29	21	13	19	18	13	13	232
Engineering science(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Environmental health eng(47)	95	206	301	46	43	67	65	55	57	55	53	52	58	551
Fuel tech/petro eng(8)	-	14	14	8	12	6	7	4	3	2	1	-	2	45
Industrial	95	298	393	88	121	124	96	61	72	40	48	40	54	744
Materials science	-	22	22	31	43	76	105	77	96	79	83	88	80	758
Mechanical	589	1357	1946	354	350	350	302	287	240	226	178	193	191	2671
Metallurgical(48)	418	776	1194	191	167	137	106	95	87	68	64	67	52	1034
Mining/mineral(49)	-	9	9	6	11	15	8	2	5	2	1	6	2	58
Naval arch/marine engin(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nuclear(46)	-	92	92	99	105	98	111	84	69	93	77	78	69	883
Ocean(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Operations research	-	-	-	-	1	50	88	107	60	66	52	57	45	526
Petroleum(50)	-	-	-	-	-	-	2	5	10	8	9	6	6	46
Polymer(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Systems(51)	-	-	-	-	-	-	-	-	58	54	47	38	56	253
Engineering, general	15	74	89	28	29	24	28	28	21	26	22	24	19	249
Engineering, other	118	402	520	173	185	184	129	127	65	59	60	47	41	1070
TOTAL, NON-SCI/ENGINEERING(52)	19125	34536	53661	10682	11709	12780	13361	13019	13238	13575	12861	12312	12315	125852
TOTAL, ALL FIELDS	51948	90897	142845	26491	28665	29572	29911	28169	28795	28763	27487	26635	26784	281272

See footnotes at end of table.

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Table 2. Citizenship status of science and engineering doctorates by subfield: 1960-89--continued

Field of study	Year of doctorate											
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1980-1989	Total 1960-1989
U.S. CITIZENS AND NON-U.S. PERMANENT RESIDENTS												
SOCIAL SCIENCES	2541	2454	2333	2341	2200	2153	2187	2065	2046	1980	22300	63519
Agricultural economics	103	103	103	88	82	87	84	79	87	89	905	1982
Anthropology	346	330	295	335	289	316	329	304	278	264	3086	7112
Area studies	19	13	17	15	15	14	10	12	13	11	139	572
Criminology(35)	27	34	35	45	32	31	24	23	32	29	312	312
Demography(2)	-	-	-	13	8	12	10	11	9	14	77	77
Econometrics	17	12	15	12	17	17	14	10	9	9	132	477
Economics	540	576	492	552	495	482	518	484	476	470	5085	15640
Geography	106	85	75	93	83	86	78	82	90	69	847	2826
History of science(36)	21	22	25	12	21	18	17	23	22	15	196	456
International relations	57	64	49	59	59	60	51	58	45	59	561	2083
Linguistics	138	120	131	111	106	122	115	117	95	111	1166	3110
Pol sci/government(37)	-	-	-	322	329	292	296	286	253	288	2066	2066
Political science(37)	442	373	372	-	-	-	-	-	-	-	1187	3235
Pol sci, public admin(37)	-	-	-	-	-	-	-	-	-	-	-	6487
Public policy studies(2)	-	-	-	56	48	60	67	64	61	62	418	418
Sociology	529	522	495	436	434	380	395	335	342	306	4174	12028
Statistics	24	21	21	19	15	21	30	21	23	20	215	745
Urban studies(38)	58	56	64	45	55	51	30	43	54	30	486	979
Social sciences, general	26	16	27	14	8	9	22	18	15	18	173	498
Social sciences, other	88	107	117	114	104	95	97	95	142	116	1075	2416
PSYCHOLOGY	2909	3158	2923	3108	2986	2864	2831	2806	2726	2652	28963	64136
Clinical	1047	1222	1118	1178	1132	1112	1092	1087	989	1021	10998	22426
Cognitive(2)	-	-	-	61	67	73	66	72	71	69	479	479
Comparative(39)	8	11	11	11	13	11	14	9	7	6	101	421
Counseling(40)	294	340	335	419	451	419	428	470	466	470	4092	6844
Developmental(41)	202	198	186	214	194	165	173	189	168	137	1826	3742
Educational	131	174	133	144	188	120	95	80	96	82	1243	2962
Exper, compar, physiol(39)	-	-	-	-	-	-	-	-	-	-	-	439
Experimental(39)	296	272	226	191	164	153	136	137	126	135	1836	6982
Indust/organizational(42)	64	85	80	88	101	99	107	103	110	95	932	2035
Physiological(39)	106	98	87	85	70	74	72	63	80	61	796	2456
Quantitative(2)	-	-	-	14	17	15	22	12	11	10	101	101
Personality	42	48	36	31	23	21	16	24	17	24	282	1059
Psychometrics	20	24	8	10	6	8	11	9	10	6	112	491
School	174	130	160	118	83	90	108	88	105	98	1154	2361
Social	184	170	165	178	147	159	129	126	134	110	1502	4313
Psychology, general	165	208	194	221	180	179	200	194	228	206	1975	3944
Psychology, other	176	178	184	145	150	166	162	143	108	122	1534	3081
TOTAL, ENGINEERING	1554	1471	1465	1482	1513	1594	1726	1912	2147	2214	17078	55799
Aeronaut/astronautical(43)	44	56	44	53	57	70	45	72	81	82	604	2547
Agricultural	28	22	24	25	32	26	28	41	45	58	329	914
Bioengineering/biomed(44)	61	57	51	59	52	52	52	54	84	84	606	1269
Ceramic	17	16	14	16	17	13	15	30	16	20	174	709
Chemical	164	171	173	200	199	257	270	328	380	406	2548	7727
Civil	122	139	137	154	164	152	167	182	212	219	1648	4899
Communications(2)	-	-	-	17	9	17	12	12	15	15	97	97
Computer	37	46	32	45	33	24	37	30	39	45	368	709
Electrical/electronics(45)	-	-	-	241	310	311	361	351	448	473	2495	2495
Electrical(45)	271	252	252	34	4	1	-	-	-	-	814	8596
Electronics(45)	51	52	51	12	-	-	-	-	-	-	166	1780
Engineering mechanics	52	45	65	33	49	37	48	52	47	46	474	2940
Engineering physics(46)	14	15	11	8	7	8	12	13	6	11	105	999
Engineering science(2)	-	-	-	16	12	18	21	15	18	12	112	112
Environmental health eng(47)	57	53	43	33	37	18	25	21	22	26	335	1187
Fuel tech/petro eng(8)	-	-	-	-	-	-	-	-	-	-	-	59
Industrial	44	42	49	45	36	38	47	57	51	59	468	1605
Materials science	87	73	76	84	93	102	101	130	138	128	1012	1792
Mechanical	191	157	198	159	153	214	219	255	280	277	2103	6720
Metallurgical(48)	71	46	41	45	40	50	36	54	45	45	473	2701
Mining/mineral(49)	1	6	6	13	9	7	9	15	8	15	89	156
Naval arch/marine engin(2)	-	-	-	-	3	2	7	4	2	2	20	20
Nuclear(46)	71	75	66	46	69	43	48	41	60	36	555	1530
Ocean(2)	-	-	-	4	4	5	9	8	8	7	45	45
Operations research	50	49	32	25	33	28	34	34	26	31	342	868
Petroleum(50)	15	6	15	4	6	11	8	9	16	12	102	148
Polymer(2)	-	-	-	11	12	24	20	13	13	25	118	118
Systems(51)	39	39	24	31	29	25	18	22	25	20	272	525
Engineering, general	26	15	14	14	7	4	23	31	26	21	181	519
Engineering, other	41	39	47	55	37	37	54	38	36	39	423	2013
TOTAL, NON-SCI/ENGINEERING(52)	12149	11905	11473	11333	11166	10817	10656	10652	10554	10513	111218	290731
TOTAL, ALL FIELDS	26512	26342	25619	25634	25251	24692	24512	24557	24891	24777	252787	676904

See footnotes at end of table.

Table 2. Citizenship status of science and engineering doctorates by subfield: 1960-89--continued

	Year of doctorate													
Field of study	Total 1960-1964	Total 1965-1969	Total 1960-1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-1979
NON-U.S. CITIZENS, TOTAL														
TOTAL, SCIENCE/ENGINEERING	6138	11806	17944	3295	3618	3860	4044	4092	4056	3839	3651	3557	3602	37614
TOTAL, SCIENCES	4812	8651	13463	2387	2562	2717	2858	2861	2815	2633	2550	2462	2462	26307
PHYSICAL SCIENCES	1256	2231	3487	626	668	709	740	670	694	648	597	580	580	6512
Physics/astronomy	501	1005	1506	286	321	334	374	328	353	304	293	245	277	3115
Acoustics	5	6	11	-	5	3	2	1	1	-	3	1	2	18
Astronomy(1)	-	4	4	4	7	8	12	6	9	9	4	2	10	71
Astronomy/astrophysics(1) ..	16	46	62	-	-	-	-	-	-	-	-	-	-	-
Astrophysics(1)	-	7	7	13	4	8	9	7	16	11	9	13	7	97
Atomic/molecular	37	77	114	19	17	20	23	23	38	22	18	20	8	208
Electron(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Electromagnetism(3)	15	23	38	3	4	1	3	2	2	4	2	1	2	24
Elementary particle	93	199	292	59	61	53	63	42	29	36	36	29	29	437
Fluids	12	46	58	6	6	4	8	6	6	4	3	4	2	49
Mechanics(4)	4	8	12	2	-	2	2	2	1	1	-	-	-	10
Nuclear(5)	124	146	270	36	39	39	47	37	37	27	24	20	25	331
Optics	6	9	15	3	4	3	7	6	11	8	5	9	12	68
Plasma	-	10	10	19	18	24	16	11	15	15	18	13	18	167
Polymer(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Solid state	91	268	359	53	74	87	88	105	96	78	79	66	73	799
Theoretical physics(6)	50	-	50	-	-	-	-	-	-	-	-	-	-	-
Thermal(7)	5	9	14	2	3	6	6	6	1	1	4	4	1	34
Physics, general	9	70	79	43	37	50	64	54	59	66	57	48	60	538
Physics, other	34	77	111	24	42	26	24	20	32	22	31	15	28	264
Chemistry	755	1226	1981	340	347	375	366	342	341	344	304	335	303	3397
Agricultural/food	74	100	174	28	23	12	6	3	4	4	1	4	2	87
Analytical	42	47	89	19	15	14	13	20	19	19	17	20	30	186
Inorganic	47	100	147	24	23	40	23	24	23	30	28	29	21	265
Nuclear	20	28	48	6	7	5	3	7	1	6	4	2	3	44
Organic	259	403	662	92	109	97	112	81	120	100	82	86	91	970
Pharmaceutical	50	93	143	23	20	21	14	14	18	21	17	20	13	181
Physical	217	337	554	97	80	92	103	91	79	72	67	71	56	808
Polymer	-	-	-	-	-	-	6	19	12	16	18	23	26	120
Theoretical	18	35	53	9	17	8	12	10	11	6	10	8	9	100
Chemistry, general	14	42	56	25	23	48	50	56	45	52	44	58	37	438
Chemistry, other	14	41	55	17	30	38	24	17	9	18	16	14	15	198
EARTH, ATMOS, & MARINE SCI	220	380	600	97	76	120	115	136	125	125	120	88	102	1104
Applied geo, geo eng(8)	25	36	61	-	-	-	-	-	-	-	-	-	-	-
Applied geology(8)	-	10	10	4	1	10	5	14	8	7	3	2	2	56
Atmos/meteorol sci, gen(2) .	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Atmos/meteorol sci, other ..	-	-	-	-	-	-	-	-	-	9	11	6	13	39
Atmospheric dynamics	-	-	-	-	-	-	-	-	-	3	7	3	10	23
Atmospheric phys/chem	-	-	-	-	-	-	-	-	-	3	1	5	2	11
Environmental sciences(9) ..	-	-	-	-	-	7	5	7	12	6	6	4	7	54
Geochemistry(10)	-	14	14	9	11	9	9	8	11	10	9	5	8	89
Geology(11)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Structural geology(11)	4	13	17	1	1	5	3	3	1	1	3	2	6	26
Geomorph/glacial geology ...	6	6	12	2	1	1	1	4	5	1	1	2	-	18
Geophysics/seismology(12) ..	-	-	-	-	-	-	-	-	-	11	17	12	15	55
Geophysics(12)	27	50	77	24	15	22	16	23	31	14	-	-	-	145
Hydrology/water res(13)	4	16	20	5	7	4	10	7	1	4	8	12	4	62
Marine sciences(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marine sciences, other(14) .	-	-	-	-	-	-	-	-	-	-	-	-	2	2
Meteorology(15)	25	36	61	12	8	14	13	15	14	9	-	-	-	85
Mineral, petrol, geochem(10)	64	77	141	-	-	-	-	-	-	-	-	-	-	-
Minerology, petrology(10) ..	-	10	10	12	8	15	11	11	11	3	5	-	2	78
Oceanography	8	24	32	4	6	6	12	13	12	14	17	14	13	111
Paleontology	13	22	35	1	3	8	2	3	3	4	-	1	1	26
Stratigraphy, sediment	33	38	71	11	6	5	9	6	2	10	10	5	7	71
Geological sciences, gen(16)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Geological sciences, oth(16)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Earth sciences, general(16).	7	13	20	7	4	4	11	12	7	12	10	9	4	80
Earth sciences, other(16) ..	4	15	19	5	5	10	8	10	7	4	12	6	6	73
Physical sciences, other(2).	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MATHEMATICS	349	668	1017	192	217	234	254	295	272	238	221	202	200	2325
Algebra	39	79	118	19	26	22	20	27	26	24	15	15	16	210
Analysis/funct analysis(17).	62	133	195	38	40	34	45	48	47	27	38	26	32	375
Applied mathematics	45	101	146	24	27	31	35	42	18	27	29	29	36	298
Computing theory	11	47	58	16	21	29	44	48	44	24	18	10	4	258
Geometry	12	23	35	8	13	9	9	12	7	7	8	4	4	81
Logic	9	15	24	5	4	5	4	1	4	8	4	5	3	43
Number theory	14	20	34	3	8	4	4	4	8	4	4	2	1	42
Operations research	-	-	-	-	-	-	-	9	18	9	17	12	12	77
Probability/math stat (18) .	109	133	242	23	15	36	46	43	45	57	46	51	53	415
Topology	34	61	95	17	15	15	13	15	16	17	14	8	11	141
Mathematics, general	11	34	45	22	31	28	28	37	34	27	21	27	28	283
Mathematics, other	3	22	25	17	17	21	6	9	5	7	7	13	-	102
COMPUTER/INFORMATION SCIENCES ..	-	-	-	-	-	-	-	-	-	-	4	31	44	79
Computer sciences	-	-	-	-	-	-	-	-	-	-	4	31	44	79
Information sci/systems(2) .	-	-	-	-	-	-	-	-	-	-	-	-	-	-

See footnotes at end of table.

Table 2. Citizenship status of science and engineering doctorates by subfield: 1960-89--continued

Field of study	Year of doctorate											
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1980-1989	Total 1960-1989
NON-U.S. CITIZENS, TOTAL												
TOTAL, SCIENCE/ENGINEERING	3663	3855	3981	4298	4527	4957	5128	5536	6048	6439	48432	103990
TOTAL, SCIENCES	2513	2612	2655	2809	2984	3223	3413	3649	3959	4154	31971	71741
PHYSICAL SCIENCES	577	589	625	659	683	755	891	945	1002	1034	7760	17759
Physics/astronomy	240	256	277	307	302	338	405	455	485	489	3554	8175
Acoustics	4	3	4	2	7	2	3	4	4	3	36	65
Astronomy(1)	6	6	4	5	7	6	7	10	18	12	81	156
Astronomy/astrophysics(1) ..	-	-	-	-	-	-	-	-	-	-	-	62
Astrophysics(1)	10	6	7	9	9	10	13	14	9	19	106	210
Atomic/molecular	12	13	30	25	18	16	23	29	22	33	221	543
Electron(2)	-	-	-	-	2	2	1	-	-	3	8	8
Electromagnetism(3)	-	-	-	-	-	-	-	-	-	-	-	62
Elementary particle	33	27	37	45	50	54	54	65	70	52	487	1216
Fluids	4	6	6	2	2	5	3	11	7	5	51	158
Mechanics(4)	-	-	-	-	-	-	-	-	-	-	-	22
Nuclear(5)	20	17	16	26	18	26	39	30	34	29	255	856
Optics	15	15	9	24	16	14	13	15	23	26	170	253
Plasma	12	11	16	18	13	17	15	28	21	25	176	353
Polymer(2)	-	-	-	5	4	6	5	5	12	3	40	40
Solid state	56	71	62	69	77	93	123	124	109	138	922	2080
Theoretical physics(6)	-	-	-	-	-	-	-	-	-	-	-	50
Thermal(7)	-	4	-	-	-	-	-	-	-	-	4	52
Physics, general	52	64	63	56	57	58	80	82	122	100	734	1351
Physics, other	16	13	23	21	22	29	26	38	34	41	263	638
Chemistry	337	333	348	352	381	417	486	490	517	545	4206	9584
Agricultural/food	-	-	-	-	-	-	-	-	-	-	-	261
Analytical	29	28	27	36	42	42	48	68	61	63	444	719
Inorganic	29	24	37	31	34	46	49	48	54	63	415	827
Nuclear	2	1	7	3	7	1	3	1	2	-	27	119
Organic	118	97	105	109	110	123	116	127	136	144	1185	2817
Pharmaceutical	20	12	17	25	10	14	19	18	23	14	172	496
Physical	53	48	53	59	62	59	71	79	83	98	665	2027
Polymer	30	35	23	22	26	36	25	39	40	34	310	430
Theoretical	7	7	8	12	8	7	12	8	12	18	99	252
Chemistry, general	39	63	50	31	55	64	111	82	87	90	672	1166
Chemistry, other	10	18	21	24	27	25	32	20	19	21	217	470
EARTH, ATMOS, & MARINE SCI	106	101	110	136	131	151	130	150	168	151	1334	3038
Applied geo, geo eng(8)	-	-	-	-	-	-	-	-	-	-	-	61
Applied geology(8)	5	5	9	3	1	1	1	3	1	1	30	96
Atmos/meteorol sci, gen(2) .	-	-	-	4	1	4	1	8	4	6	28	28
Atmos/meteorol sci, other ..	17	13	6	4	3	3	2	5	1	4	58	97
Atmospheric dynamics	8	5	7	7	11	8	6	5	10	6	73	96
Atmospheric phys/chem	3	1	-	3	3	1	5	3	9	6	34	45
Environmental sciences(9) ..	6	11	6	14	7	9	5	5	8	12	83	137
Geochemistry(10)	6	3	9	4	7	11	11	9	8	7	75	178
Geology(11)	-	-	-	16	24	28	14	20	24	17	143	143
Structural geology(11)	-	-	2	-	-	-	-	-	-	-	2	45
Geomorph/glacial geology ...	3	1	3	2	1	1	2	3	1	1	18	48
Geophysics/seismology(12) ..	22	17	20	22	20	28	23	34	30	21	237	292
Geophysics(12)	-	-	-	-	-	-	-	-	-	-	-	222
Hydrology/water res(13)	6	8	10	8	5	8	3	6	9	8	71	153
Marine sciences(2)	-	-	-	6	4	4	3	7	5	6	35	35
Marine sciences, other(14) .	1	3	8	-	-	-	-	-	-	-	12	14
Meteorology(15)	-	-	-	5	5	9	13	6	13	5	56	202
Mineral, petrol, geochem(10)	-	-	-	-	-	-	-	-	-	-	-	141
Minerology, petrology(10) ..	2	3	4	4	1	4	3	3	3	4	31	119
Oceanography	9	7	8	20	16	14	19	16	19	21	149	292
Paleontology	1	-	-	1	3	2	4	2	2	2	17	78
Stratigraphy, sediment	2	5	3	5	4	6	2	2	4	5	38	180
Geological sciences, gen(16)	-	-	-	4	4	1	2	4	2	9	26	26
Geological sciences, oth(16)	-	-	-	1	8	3	1	6	6	7	32	32
Earth sciences, general(16).	9	14	9	-	-	-	-	-	-	-	32	132
Earth sciences, other(16) ..	6	5	6	-	-	-	-	-	-	-	17	109
Physical sciences, other(2).	-	-	-	3	3	6	10	3	9	3	37	37
MATHEMATICS	201	229	233	255	268	280	308	353	349	378	2854	6196
Algebra	13	19	14	18	24	23	23	25	24	22	205	533
Analysis/funct analysis(17).	23	34	35	31	31	30	40	46	29	53	352	922
Applied mathematics	27	34	36	38	33	56	52	56	72	77	481	925
Computing theory	2	5	6	3	6	2	6	5	3	3	41	357
Geometry	8	4	10	20	10	15	17	19	24	21	148	264
Logic	4	1	3	4	11	8	8	10	9	6	64	131
Number theory	7	4	4	9	8	7	6	5	17	6	73	149
Operations research	16	18	17	11	12	9	16	16	12	10	137	214
Probability/math stat (18) .	62	61	61	61	77	78	57	74	81	77	689	1346
Topology	9	11	6	11	12	11	14	10	12	16	112	348
Mathematics, general	22	27	30	27	29	29	45	67	53	66	395	723
Mathematics, other	8	11	11	22	15	12	24	20	13	21	157	284
COMPUTER/INFORMATION SCIENCES ..	56	60	71	99	106	113	170	175	218	236	1304	1383
Computer sciences	56	60	71	90	92	92	154	150	185	210	1160	1239
Information sci/systems(2) .	-	-	-	9	14	21	16	25	33	26	144	144

See footnotes at end of table.

Table 2. Citizenship status of science and engineering doctorates by subfield: 1960-89--continued

	Year of doctorate													
Field of study	Total 1960-1964	Total 1965-1969	Total 1960-1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-1979
NON-U.S. CITIZENS, TOTAL														
AGRICULTURAL & BIOLOGICAL SCI ..	1780	3185	4965	778	833	844	867	907	844	756	764	744	723	8060
Agricultural sciences	589	1060	1649	246	313	317	309	336	337	281	284	310	294	3027
Agric business & mgmt (19) .	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Agronomy	210	330	540	63	71	51	62	61	61	68	54	52	59	602
Animal breeding/genetics(20)	97	184	281	25	25	17	6	5	4	3	7	4	5	101
Animal nutrition(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Animal sci/nutrition(21) ...	-	-	-	-	-	24	37	53	46	34	32	38	39	303
Dairy science(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Poultry science(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Animal sciences, other(21) .	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fish/wildlife(22)	14	11	25	5	7	1	7	9	11	4	7	8	4	63
Fisheries science(22)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wildlife management(22)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wildlife/range mgmt(22)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Food sciences(23)	-	14	14	13	40	36	52	44	63	38	53	51	43	433
Food engineering(23)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Food sciences, other(23) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Forestry science(24)	35	56	91	16	15	18	20	27	24	23	15	24	24	206
Forest biology(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Forest engineering(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Forest management(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wood science(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Renewable natrl resrces(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Forestry&relatd sci, oth(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Horticulture science	79	126	205	26	27	43	17	23	25	21	20	27	18	247
Plant breeding/genetics(25).	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Plant pathology(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phytopathology(25)	123	195	318	36	42	37	32	31	33	31	25	30	25	322
Plant protectn-pest mgmt(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Plant sciences, other(25) ..	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Soil sciences(26)	-	19	19	22	33	44	50	50	38	37	38	43	41	396
Soil chem/microbio(26)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Soil sciences, other(26) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Agriculture, general	4	17	21	2	1	2	-	5	7	4	6	3	5	35
Agriculture, other	27	108	135	38	52	44	26	28	25	18	27	30	31	319
Biological sciences	1191	2125	3316	532	520	527	558	571	507	475	480	434	429	5033
Anatomy	28	43	71	15	17	11	7	11	12	6	10	11	11	111
Biochemistry	297	524	821	108	129	98	116	110	107	107	91	102	90	1058
Biometrics/biostat	16	25	41	9	7	10	9	15	4	9	13	10	8	94
Biophysics	20	55	75	14	15	19	25	22	13	22	26	15	20	191
Botany, other(27)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Botany(27)	106	122	228	24	22	29	19	30	19	22	13	18	16	212
Cell biology(28)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cytology(28)	13	26	39	7	4	2	6	2	9	3	1	3	2	39
Ecology	17	29	46	12	5	11	16	14	14	8	13	9	8	110
Embryology	5	11	16	2	3	2	2	2	2	2	-	-	-	15
Endocrinology(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Entomology	118	176	294	37	40	43	47	41	37	29	36	31	41	382
Human/animal genetics(29) ..	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Plant genetics(29)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Genetics(29)	126	202	328	38	41	40	35	39	30	33	19	20	20	315
Human/animal pathology(30) .	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Plant pathology(30)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pathology(30)	20	52	72	12	17	19	20	17	12	15	16	7	12	147
Human/animal pharmacol	47	118	165	29	23	23	38	31	20	21	25	21	19	250
Human/animal physiol(31) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Animal physiology(31)	45	152	197	48	42	46	40	40	37	25	43	27	23	371
Animal/plant physiol(31) ...	36	-	36	-	-	-	-	-	-	-	-	-	-	-
Plant physiology(31)	45	116	161	18	21	18	25	21	20	16	15	9	14	177
Hydrobiology	3	5	8	4	1	1	1	1	-	-	-	-	-	8
Immunology	-	-	-	-	-	3	3	15	9	17	11	12	12	82
Microbiology(32)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bacteriology(32)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Microbiology/bacteriol(32) .	149	267	416	68	45	52	49	61	55	45	39	44	32	490
Molecular biology	-	15	15	14	11	20	16	23	25	17	20	23	18	187
Neurosciences	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nutritional sciences(33) ...	13	-	13	-	-	-	-	-	-	26	30	23	23	102
Parasitology	-	-	-	-	-	-	-	6	4	1	4	3	5	23
Toxicology(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zoology, other(34)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zoology(34)	71	115	186	24	24	25	25	15	19	15	21	9	14	191
Biological sci, general	3	20	23	16	26	18	27	19	19	21	20	22	22	210
Biological sci, other	13	52	65	33	27	37	32	36	40	15	14	15	19	268

See footnotes at end of table.

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Table 2. Citizenship status of science and engineering doctorates by subfield: 1960-89--continued

Field of study	Year of doctorate 1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1980-1989	Total 1960-1989
NON-U.S. CITIZENS, TOTAL												
AGRICULTURAL & BIOLOGICAL SCI ..	778	772	743	779	824	930	876	989	1164	1176	9031	22056
Agricultural sciences	331	360	283	343	349	398	368	337	416	400	3585	8261
Agric business & mgmt (19) .	-	-	-	-	-	-	-	-	-	1	1	1
Agronomy	69	64	56	63	67	60	61	51	65	52	608	1750
Animal breeding/genetics(20)	6	5	2	9	10	10	11	11	13	11	88	470
Animal nutrition(21)	-	-	-	13	23	25	18	18	16	18	131	131
Animal sci/nutrition(21) ...	33	59	32	-	-	-	-	-	-	-	124	427
Dairy science(21)	-	-	-	-	-	-	-	-	2	4	6	6
Poultry science(21)	-	-	-	-	-	-	-	-	6	5	11	11
Animal sciences, other(21) .	-	-	-	34	30	34	29	23	25	30	205	205
Fish/wildlife(22)	14	2	8	-	-	-	-	-	-	-	24	112
Fisheries science(22)	-	-	-	13	10	2	9	5	13	14	66	66
Wildlife management(22)	-	-	-	6	4	5	2	3	1	-	21	21
Wildlife/range mgmt(22)	-	-	-	-	-	-	-	-	9	7	16	16
Food sciences(23)	50	55	52	60	51	66	62	67	11	-	474	921
Food engineering(23)	-	-	-	-	-	-	-	-	4	10	14	14
Food sciences, other(23) ...	-	-	-	-	-	-	-	-	70	73	143	143
Forestry science(24)	18	24	14	23	13	20	26	24	1	-	163	460
Forest biology(24)	-	-	-	-	-	-	-	-	4	5	9	9
Forest engineering(24)	-	-	-	-	-	-	-	-	-	1	1	1
Forest management(24)	-	-	-	-	-	-	-	-	7	5	12	12
Wood science(24)	-	-	-	-	-	-	-	-	3	10	13	13
Renewable natrl resrces(24)	-	-	-	-	-	-	-	-	4	5	9	9
Forestry&relatd sci, oth(24)	-	-	-	-	-	-	-	-	9	17	26	26
Horticulture science	28	37	22	24	16	31	17	24	28	21	248	700
Plant breeding/genetics(25).	-	-	-	19	21	29	36	22	31	18	176	176
Plant pathology(25)	-	-	-	26	23	27	31	23	21	24	175	175
Phytopathology(25)	39	30	26	-	-	-	-	-	-	-	95	735
Plant protectn-pest mgmt(25)	-	-	-	-	-	-	-	-	-	3	3	3
Plant sciences, other(25) ..	-	-	-	4	6	9	7	11	9	7	53	53
Soil sciences(26)	36	45	32	36	48	46	46	31	7	-	327	742
Soil chem/microbio(26)	-	-	-	-	-	-	-	-	11	9	20	20
Soil sciences, other(26) ...	-	-	-	-	-	-	-	-	34	36	70	70
Agriculture, general	1	4	4	4	-	2	2	2	6	3	28	84
Agriculture, other	37	35	35	9	27	32	11	22	6	11	225	679
Biological sciences	447	412	460	436	475	532	508	652	748	776	5446	13795
Anatomy	13	7	12	8	9	17	9	12	8	12	107	289
Biochemistry	72	74	83	84	88	97	91	114	141	160	1004	2883
Biometrics/biostat	9	7	8	7	13	8	9	9	15	11	96	231
Biophysics	18	19	17	13	13	9	14	23	18	22	166	432
Botany, other(27)	-	-	-	10	12	17	14	18	16	21	108	108
Botany(27)	14	14	19	-	-	-	-	-	-	-	47	487
Cell biology(28)	-	-	-	8	10	11	12	15	17	19	92	92
Cytology(28)	6	5	1	-	-	-	-	-	-	-	12	90
Ecology	13	12	13	17	15	19	25	16	28	28	186	342
Embryology	2	1	2	2	2	1	-	2	1	1	14	45
Endocrinology(2)	-	-	-	5	7	3	3	4	4	8	34	34
Entomology	38	34	40	35	42	32	26	25	23	28	323	999
Human/animal genetics(29) ..	-	-	-	6	6	14	8	15	19	14	82	82
Plant genetics(29)	-	-	-	9	3	8	4	4	12	8	48	48
Genetics(29)	28	18	24	-	-	-	-	-	-	-	70	713
Human/animal pathology(30) .	-	-	-	18	10	15	10	26	20	17	116	116
Plant pathology(30)	-	-	-	3	8	11	7	13	7	4	53	53
Pathology(30)	18	18	15	-	-	-	-	-	-	-	51	270
Human/animal pharmacol	32	27	21	16	31	27	22	33	29	34	272	687
Human/animal physiol(31) ...	-	-	-	24	27	33	27	36	35	43	225	225
Animal physiology(31)	22	23	38	-	-	-	-	-	-	-	83	651
Animal/plant physiol(31) ...	-	-	-	-	-	-	-	-	-	-	-	36
Plant physiology(31)	8	14	12	15	11	12	7	14	27	10	130	468
Hydrobiology	-	-	-	-	-	-	-	-	-	-	-	16
Immunology	15	10	16	21	14	17	17	22	19	18	169	251
Microbiology(32)	-	-	-	37	42	48	54	56	53	70	360	360
Bacteriology(32)	-	-	-	2	1	2	4	1	2	2	14	14
Microbiology/bacteriol(32) .	41	45	45	-	-	-	-	-	-	-	131	1037
Molecular biology	25	14	21	22	22	34	37	57	81	89	402	604
Neurosciences	-	-	8	13	12	17	10	16	19	28	123	123
Nutritional sciences(33) ...	13	19	24	24	20	26	23	30	41	32	252	367
Parasitology	6	3	4	2	3	5	4	2	6	8	43	66
Toxicology(2)	-	-	-	7	4	6	6	11	11	6	51	51
Zoology, other(34)	-	-	-	9	13	11	17	13	20	13	96	96
Zoology(34)	13	13	10	-	-	-	-	-	-	-	36	413
Biological sci, general	24	21	17	13	27	20	33	39	44	50	288	521
Biological sci, other	17	14	10	6	10	12	15	26	32	20	162	495

See footnotes at end of table.

Table 2. Citizenship status of science and engineering doctorates by subfield: 1960-89--continued

Field of study	Total 1960-1964	Total 1965-1969	Total 1960-1969	Year of doctorate 1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-1979
NON-U.S. CITIZENS, TOTAL														
SOCIAL SCIENCES	976	1859	2835	595	647	681	752	722	724	739	724	702	695	6981
Agricultural economics	-	33	33	37	62	57	73	70	70	66	60	65	76	636
Anthropology	33	60	93	23	23	18	26	28	31	40	38	46	43	316
Area studies	1	10	11	9	9	4	4	8	9	5	1	7	1	57
Criminology(35)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Demography(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Econometrics	25	49	74	9	7	13	11	8	14	11	13	8	7	101
Economics	439	794	1233	203	203	214	260	235	217	239	244	230	247	2292
Geography	64	84	148	29	35	38	43	32	29	28	35	37	20	326
History of science(36)	-	-	-	-	3	3	3	6	2	7	1	4	2	31
International relations	68	113	181	16	30	28	19	30	25	32	19	29	23	251
Linguistics	61	112	173	34	42	38	51	44	47	41	51	49	48	445
Pol sci/government(37)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Political science(37)	-	-	-	-	-	-	-	-	-	97	99	80	75	351
Pol sci, public admin(37)	171	290	461	77	75	111	112	117	112	7	-	-	-	611
Public policy studies(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sociology	103	218	321	83	91	88	90	95	111	103	95	80	90	926
Statistics	-	40	40	43	35	32	28	16	19	12	17	20	14	236
Urban studies(38)	-	-	-	-	7	14	11	15	20	23	24	17	27	158
Social sciences, general	2	1	3	-	2	3	3	3	3	5	4	5	6	34
Social sciences, other	9	55	64	32	23	20	18	15	15	23	23	25	16	210
PSYCHOLOGY	231	328	559	99	121	129	130	131	156	127	120	115	118	1246
Clinical	71	72	143	14	20	12	25	26	31	14	17	25	15	199
Cognitive(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Comparative(39)	5	4	9	2	2	-	1	-	1	3	1	-	-	10
Counseling(40)	9	18	27	4	10	7	7	8	11	10	7	10	12	86
Developmental(41)	6	21	27	6	7	8	11	10	14	8	11	5	11	91
Educational	10	15	25	6	6	11	9	7	4	7	9	8	12	79
Exper, compar, physiol(39)	25	-	25	-	-	-	-	-	-	-	-	-	-	-
Experimental(39)	32	65	97	18	20	17	22	18	18	16	23	16	15	183
Indust/organizational(42)	9	15	24	5	7	5	5	8	7	10	6	5	5	63
Physiological(39)	7	26	33	8	8	9	7	9	9	6	7	9	4	76
Quantitative(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Personality	8	6	14	3	4	4	2	2	1	5	1	2	1	25
Psychometrics	10	13	23	3	3	7	3	3	3	3	3	2	2	32
School	1	3	4	-	-	2	2	4	2	6	1	2	3	22
Social	34	38	72	23	17	24	18	21	28	23	11	12	10	187
Psychology, general	3	23	26	4	14	9	12	10	17	12	14	6	14	112
Psychology, other	1	9	10	3	3	14	6	5	10	4	9	13	14	81
TOTAL, ENGINEERING	1326	3155	4481	908	1056	1143	1186	1231	1241	1206	1101	1095	1140	11307
Aeronaut/astronautical(43)	62	161	223	46	53	54	52	45	44	36	55	53	50	488
Agricultural	25	45	70	16	19	21	24	27	22	15	16	22	43	225
Bioengineering/biomed(44)	-	3	3	7	11	13	13	17	12	12	12	17	12	126
Ceramic	14	20	34	5	5	10	5	4	7	12	11	5	6	70
Chemical	216	386	602	134	121	127	161	182	176	150	142	129	144	1466
Civil	229	538	767	144	192	170	177	157	149	175	153	137	128	1582
Communications(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Computer	-	-	-	-	-	-	-	-	42	51	48	36	41	218
Electrical/electronics(45)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Electrical(45)	259	587	846	155	186	209	210	203	217	204	181	177	182	1924
Electronics(45)	64	145	209	31	28	32	37	27	30	32	35	23	43	318
Engineering mechanics	119	307	426	65	81	89	74	69	76	54	43	46	43	640
Engineering physics(46)	45	123	168	6	10	14	9	10	7	2	2	3	7	70
Engineering science(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Environmental health eng(47)	25	58	83	11	9	18	27	26	22	28	18	19	12	190
Fuel tech/petro eng(8)	-	13	13	7	8	2	7	12	8	3	2	2	3	54
Industrial	14	66	80	38	25	38	20	35	28	30	31	16	32	293
Materials science	-	3	3	6	21	36	46	55	48	54	56	53	65	440
Mechanical	137	323	460	83	102	126	126	145	131	120	106	129	126	1194
Metallurgical(48)	84	199	283	51	70	66	50	56	56	57	40	47	44	537
Mining/mineral(49)	-	5	5	6	10	4	8	1	3	5	1	4	2	44
Naval arch/marine engin(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nuclear(46)	-	29	29	32	17	31	35	33	28	53	33	44	33	339
Ocean(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Operations research	-	-	-	-	1	20	35	38	43	29	29	35	28	258
Petroleum(50)	-	-	-	-	-	-	5	8	10	11	13	18	18	83
Polymer(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Systems(51)	-	-	-	-	-	-	-	-	28	25	28	31	27	139
Engineering, general	1	27	28	10	10	4	14	18	13	18	11	13	13	124
Engineering, other	32	117	149	55	77	59	51	63	41	30	35	36	38	485
TOTAL, NON-SCI/ENGINEERING(52)	1398	2858	4256	853	979	1064	1128	1093	1194	1184	1165	1208	1305	11173
TOTAL, ALL FIELDS	7536	14664	22200	4148	4597	4924	5172	5185	5250	5023	4816	4765	4907	48787

See footnotes at end of table.

Table 2. Citizenship status of science and engineering doctorates by subfield: 1960-89--continued

Field of study	Year of doctorate											
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1980-1989	Total 1960-1989
NON-U.S. CITIZENS, TOTAL												
SOCIAL SCIENCES	674	734	761	738	833	854	892	893	914	1024	8317	18133
Agricultural economics	61	76	82	68	80	52	66	55	55	64	659	1328
Anthropology	31	35	36	33	36	37	46	38	44	45	381	790
Area studies	2	6	2	1	6	7	9	3	1	2	39	107
Criminology(35)	4	2	-	6	9	9	-	2	7	2	41	41
Demography(2)	-	-	-	12	10	13	8	16	13	7	79	79
Econometrics	8	10	11	12	15	13	16	16	20	20	141	316
Economics	238	255	257	261	302	326	314	324	346	365	2988	6513
Geography	22	22	28	32	34	34	38	31	39	34	314	788
History of science(36)	-	4	3	-	2	5	6	2	1	3	26	57
International relations	31	20	29	23	34	21	29	29	25	37	278	710
Linguistics	52	50	57	51	61	61	70	77	70	79	628	1246
Pol sci/government(37)	-	-	-	67	91	95	94	107	106	123	683	683
Political science(37)	66	77	81	-	-	-	-	-	-	-	224	575
Pol sci, public admin(37) ..	-	-	-	-	-	-	-	-	-	-	-	1072
Public policy studies(2) ...	-	-	-	15	11	12	15	16	13	15	97	97
Sociology	97	96	82	81	76	77	92	82	96	117	896	2143
Statistics	13	20	26	24	23	39	35	32	25	44	281	557
Urban studies(38)	25	32	32	22	22	30	17	23	25	25	253	411
Social sciences, general ...	4	4	4	3	6	4	9	13	6	7	60	97
Social sciences, other	20	25	31	27	15	19	28	27	22	35	249	523
PSYCHOLOGY	121	127	112	143	139	140	146	144	144	155	1371	3176
Clinical	22	21	25	26	25	23	33	39	39	28	281	623
Cognitive(2)	-	-	-	5	11	3	6	9	13	11	58	58
Comparative(39)	-	-	1	-	1	-	1	-	-	2	5	24
Counseling(40)	4	19	11	16	14	11	20	12	15	15	137	250
Developmental(41)	9	6	11	7	13	11	15	15	9	13	109	227
Educational	6	8	3	16	15	6	5	5	4	11	79	183
Exper, compar, physiol(39) .	-	-	-	-	-	-	-	-	-	-	-	25
Experimental(39)	19	13	12	16	6	15	14	9	12	12	128	408
Indust/organizational(42) ..	2	4	4	4	6	4	2	4	6	7	43	130
Physiological(39)	5	5	4	8	3	10	2	8	7	1	53	162
Quantitative(2)	-	-	-	-	-	2	2	2	1	3	10	10
Personality	1	1	1	1	1	2	1	1	1	5	15	54
Psychometrics	2	3	-	-	-	2	-	-	1	1	9	64
School	3	1	3	4	2	2	3	3	3	2	26	52
Social	8	11	14	14	9	15	18	13	8	18	128	387
Psychology, general	13	17	9	16	13	18	14	16	18	14	148	286
Psychology, other	27	18	14	10	20	16	10	8	7	12	142	233
TOTAL, ENGINEERING	1150	1243	1326	1489	1543	1734	1715	1887	2089	2285	16461	32249
Aeronaut/astronautical(43) .	45	41	48	62	69	68	65	67	62	91	618	1329
Agricultural	40	46	26	40	45	36	26	38	28	47	372	667
Bioengineering/biomed(44) ..	12	15	10	16	21	18	10	23	31	32	188	317
Ceramic	10	13	8	11	10	6	10	16	14	16	114	218
Chemical	153	155	151	176	178	211	226	230	253	243	1976	4044
Civil	136	169	185	217	207	230	234	256	294	302	2230	4579
Communications(2)	-	-	-	12	4	19	10	20	11	15	91	91
Computer	34	41	50	52	29	36	48	39	69	74	472	690
Electrical/electronics(45) .	-	-	-	230	306	338	345	324	444	505	2492	2492
Electrical(45)	160	185	240	33	1	1	-	-	-	-	620	3390
Electronics(45)	31	22	29	7	-	-	-	-	-	-	89	616
Engineering mechanics	45	37	54	41	51	52	51	69	65	63	528	1594
Engineering physics(46)	4	10	1	2	2	4	3	-	3	6	35	273
Engineering science(2)	-	-	-	15	18	17	11	11	11	15	98	98
Environmental health eng(47)	14	18	23	12	23	17	18	18	18	16	177	450
Fuel tech/petro eng(8)	-	-	-	-	-	-	-	-	-	-	-	67
Industrial	38	27	39	56	48	57	66	69	77	98	575	948
Materials science	71	53	67	74	91	92	94	118	118	114	892	1335
Mechanical	144	151	171	179	193	245	238	301	339	357	2318	3972
Metallurgical(48)	47	61	46	50	45	50	66	63	48	43	519	1339
Mining/mineral(49)	3	3	1	13	11	9	14	14	11	19	98	147
Naval arch/marine engin(2) .	-	-	-	4	3	6	6	2	6	7	34	34
Nuclear(46)	50	63	57	60	56	53	51	43	42	40	515	883
Ocean(2)	-	-	-	8	7	22	4	17	10	8	76	76
Operations research	20	40	30	21	20	29	21	24	19	38	262	520
Petroleum(50)	23	16	15	14	9	16	11	16	18	14	152	235
Polymer(2)	-	-	-	12	21	24	19	26	16	39	157	157
Systems(51)	26	34	27	30	28	34	16	26	26	12	259	398
Engineering, general	11	11	5	10	18	10	20	23	22	24	154	306
Engineering, other	33	32	43	32	29	34	32	34	34	47	350	984
TOTAL, NON-SCI/ENGINEERING(52) ...	1272	1366	1451	1476	1529	1596	1580	1652	1762	1756	15440	30869
TOTAL, ALL FIELDS	4935	5221	5432	5774	6056	6553	6708	7188	7810	8195	63872	134859

See footnotes at end of table.

Table 2. Citizenship status of science and engineering doctorates by subfield: 1960-89--continued

Field of study	Total 1960-1964	Total 1965-1969	Total 1960-1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-1979
	Year of doctorate													
NON-U.S. CITIZENS, PERMANENT RESIDENTS														
TOTAL, SCIENCE/ENGINEERING	1284	3333	4617	1242	1491	1648	1579	1400	1269	1106	990	992	945	12662
TOTAL, SCIENCES	921	2195	3116	808	957	1024	1018	883	849	715	664	667	622	8207
PHYSICAL SCIENCES	261	621	882	263	305	322	303	257	236	217	191	183	165	2442
Physics/astronomy	101	285	386	99	131	125	126	98	109	76	86	64	70	984
Acoustics	1	2	3	-	3	2	1	1	-	-	-	-	-	7
Astronomy(1)	-	1	1	2	4	5	2	-	2	1	2	1	4	23
Astronomy/astrophysics(1)	2	11	13	-	-	-	-	-	-	-	-	-	-	-
Astrophysics(1)	-	1	1	3	-	2	-	1	3	2	1	3	-	15
Atomic/molecular	10	32	42	6	2	9	8	7	11	5	3	8	2	61
Electron(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Electromagnetism(3)	7	8	15	2	2	-	1	1	2	3	2	-	-	13
Elementary particle	17	47	64	12	21	14	21	10	8	6	8	2	7	109
Fluids	4	17	21	4	5	4	4	4	-	3	1	1	2	28
Mechanics(4)	1	4	5	1	-	-	1	-	-	-	-	-	-	2
Nuclear(5)	17	40	57	15	19	14	16	10	10	4	9	4	4	105
Optics	-	3	3	1	3	-	3	1	4	2	1	2	2	19
Plasma	-	2	2	10	6	9	6	4	6	6	8	4	4	63
Polymer(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Solid state	21	78	99	18	29	44	33	33	42	25	22	19	25	290
Theoretical physics(6)	10	-	10	-	-	-	-	-	-	-	-	-	-	-
Thermal(7)	2	-	2	-	2	1	4	3	-	-	2	1	-	13
Physics, general	1	19	20	19	15	12	17	13	14	15	17	12	14	148
Physics, other	8	20	28	6	20	9	9	10	7	4	10	7	6	88
Chemistry	160	336	496	164	174	197	177	159	127	141	105	119	95	1458
Agricultural/food	6	34	40	15	14	7	4	1	2	2	-	1	-	46
Analytical	9	7	16	9	10	8	8	9	4	3	9	8	12	80
Inorganic	14	29	43	11	14	20	11	9	6	17	3	8	8	107
Nuclear	4	8	12	3	3	3	3	3	-	3	1	2	1	22
Organic	61	118	179	39	47	56	49	43	41	43	33	28	26	405
Pharmaceutical	6	24	30	11	12	14	9	12	12	14	9	17	8	118
Physical	51	90	141	52	34	49	49	46	34	26	27	22	21	360
Polymer	-	-	-	-	-	-	4	8	5	7	5	11	4	44
Theoretical	3	7	10	3	12	2	6	4	5	1	2	-	1	36
Chemistry, general	1	7	8	11	9	22	19	17	14	17	8	15	10	142
Chemistry, other	5	12	17	10	19	16	15	7	4	8	8	7	4	98
EARTH, ATMOS, & MARINE SCI	39	87	126	29	35	56	45	45	36	31	22	22	33	354
Applied geo, geo eng(8)	4	8	12	-	-	-	-	-	-	-	-	-	-	-
Applied geology(8)	-	1	1	1	1	3	2	3	1	1	-	1	1	14
Atmos/meteorol sci, gen(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Atmos/meteorol sci, other	-	-	-	-	-	-	-	-	-	3	3	5	2	13
Atmospheric dynamics	-	-	-	-	-	-	-	-	-	-	1	1	5	7
Atmospheric phys/chem	-	-	-	-	-	-	-	-	-	1	-	3	1	5
Environmental sciences(9)	-	-	-	-	-	3	3	1	4	2	2	3	5	23
Geochemistry(10)	-	6	6	1	5	3	3	1	3	3	6	1	1	27
Geology(11)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Structural geology(11)	2	3	5	1	-	1	-	-	-	-	-	-	1	3
Geomorph/glacial geology	-	1	1	-	-	-	-	1	4	-	-	1	-	6
Geophysics/seismology(12)	-	-	-	-	-	-	-	-	-	2	1	-	5	8
Geophysics(12)	3	12	15	9	10	10	5	10	10	4	-	-	-	58
Hydrology/water res(13)	1	4	5	1	2	1	6	1	1	-	-	3	1	16
Marine sciences(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marine sciences, other(14)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Meteorology(15)	4	9	13	5	6	11	7	8	3	4	-	-	-	44
Mineral, petrol, geochem(10)	12	15	27	-	-	-	-	-	-	-	-	-	-	-
Minerology, petrology(10)	-	2	2	5	3	8	3	3	1	1	1	-	1	26
Oceanography	3	6	9	1	3	3	5	7	5	5	5	-	2	36
Paleontology	2	3	5	-	2	3	1	2	1	1	-	-	-	10
Stratigraphy, sediment	5	7	12	3	3	5	3	2	-	1	-	2	4	23
Geological sciences, gen(16)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Geological sciences, oth(16)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Earth sciences, general(16)	1	5	6	2	-	1	4	4	2	3	1	2	2	21
Earth sciences, other(16)	2	5	7	-	-	4	3	2	1	-	2	-	2	14
Physical sciences, other(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MATHEMATICS	55	177	232	58	65	65	81	71	75	55	54	47	51	622
Algebra	2	15	17	5	10	5	9	9	6	5	3	2	6	60
Analysis/funct analysis(17)	9	35	44	10	13	8	13	14	11	2	5	7	10	93
Applied mathematics	13	36	49	6	9	11	11	11	7	4	12	5	7	83
Computing theory	2	14	16	8	5	8	19	11	17	8	6	3	1	86
Geometry	1	4	5	2	6	2	3	4	3	-	1	-	-	21
Logic	-	1	1	1	-	-	1	-	-	1	-	-	-	3
Number theory	1	5	6	-	2	1	-	-	2	1	-	1	-	7
Operations research	-	-	-	-	-	-	-	-	3	5	7	4	2	21
Probability/math stat (18)	19	35	54	9	6	13	17	10	14	12	15	13	16	125
Topology	4	14	18	5	3	6	3	4	4	5	1	2	3	36
Mathematics, general	3	9	12	4	9	7	4	5	7	6	3	6	6	57
Mathematics, other	1	9	10	8	2	4	1	3	1	6	1	4	-	30
COMPUTER/INFORMATION SCIENCES	-	-	-	-	-	-	-	-	-	-	1	5	12	18
Computer sciences	-	-	-	-	-	-	-	-	-	-	1	5	12	18
Information sci/systems(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-

See footnotes at end of table.

Table 2. Citizenship status of science and engineering doctorates by subfield: 1960-89--continued

Field of study	Year of doctorate											
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1980-1989	Total 1960-1989
NON-U.S. CITIZENS, PERMANENT RESIDENTS												
TOTAL, SCIENCE/ENGINEERING	953	893	854	898	835	929	987	1086	1129	1106	9670	26949
TOTAL, SCIENCES	654	592	558	579	561	614	644	731	762	745	6440	17763
PHYSICAL SCIENCES	151	147	119	120	119	135	133	147	137	146	1354	4678
Physics/astronomy	51	53	35	51	36	48	40	56	62	62	494	1864
Acoustics	2	2	1	-	1	-	-	-	1	-	7	17
Astronomy(1)	3	1	-	-	-	-	-	-	6	3	13	37
Astronomy/astrophysics(1)	-	-	-	-	-	-	-	-	-	-	-	13
Astrophysics(1)	2	3	1	2	1	2	3	1	1	1	17	33
Atomic/molecular	3	2	7	7	2	1	-	5	3	5	35	138
Electron(2)	-	-	-	-	-	1	-	-	-	1	2	2
Electromagnetism(3)	-	-	-	-	-	-	-	-	-	-	-	28
Elementary particle	7	6	2	5	7	6	5	11	9	9	67	240
Fluids	-	1	2	-	-	-	-	1	1	1	6	55
Mechanics(4)	-	-	-	-	-	-	-	-	-	-	-	7
Nuclear(5)	4	1	2	7	4	4	4	6	2	6	40	202
Optics	5	4	-	5	4	1	1	1	9	3	33	55
Plasma	4	1	1	1	-	2	2	6	4	6	27	92
Polymer(2)	-	-	-	1	-	3	1	-	1	-	6	6
Solid state	11	13	11	14	9	14	13	12	10	17	124	513
Theoretical physics(6)	-	-	-	-	-	-	-	-	-	-	-	10
Thermal(7)	-	1	-	-	-	-	-	-	-	-	1	16
Physics, general	7	15	5	3	6	12	10	10	12	9	89	257
Physics, other	3	3	3	6	2	2	1	3	3	1	27	143
Chemistry	100	94	84	69	83	87	93	91	75	84	860	2814
Agricultural/food	-	-	-	-	-	-	-	-	-	-	-	86
Analytical	11	8	8	6	5	6	5	12	12	4	77	173
Inorganic	7	6	8	6	6	8	6	9	10	10	76	226
Nuclear	-	-	2	-	1	-	-	-	-	-	3	37
Organic	37	33	20	25	28	36	27	23	12	27	268	852
Pharmaceutical	6	5	6	7	3	5	9	3	4	4	52	200
Physical	15	13	19	8	16	5	15	16	11	17	135	636
Polymer	13	13	6	6	11	11	7	7	8	6	88	132
Theoretical	-	1	-	2	1	2	1	1	-	-	8	54
Chemistry, general	8	8	11	5	7	9	15	17	15	15	110	260
Chemistry, other	3	7	4	4	5	5	8	3	3	1	43	158
EARTH, ATMOS, & MARINE SCI	26	16	29	30	25	32	24	25	31	30	268	748
Applied geo, geo eng(8)	-	-	-	-	-	-	-	-	-	-	-	12
Applied geology(8)	-	1	1	1	-	-	1	-	-	-	4	19
Atmos/meteorol sci, gen(2)	-	-	-	1	-	-	-	1	1	-	3	3
Atmos/meteorol sci, other	3	1	3	1	-	-	-	-	1	1	10	23
Atmospheric dynamics	2	1	2	2	3	2	-	1	3	2	18	25
Atmospheric phys/chem	2	-	-	1	1	-	2	-	1	2	9	14
Environmental sciences(9)	3	2	-	5	2	3	1	2	2	4	24	47
Geochemistry(10)	-	2	2	1	2	2	5	1	2	1	18	51
Geology(11)	-	-	-	1	2	6	6	4	5	3	27	27
Structural geology(11)	-	-	1	-	-	-	-	-	-	-	1	9
Geomorph/glacial geology	-	-	1	1	-	-	-	1	-	1	4	11
Geophysics/seismology(12)	6	5	7	6	5	6	1	7	4	1	48	56
Geophysics(12)	-	-	-	-	-	-	-	-	-	-	-	73
Hydrology/water res(13)	1	-	4	-	1	2	2	-	-	-	10	31
Marine sciences(2)	-	-	-	2	-	-	-	1	-	-	3	3
Marine sciences, other(14)	1	-	2	-	-	-	-	-	-	-	3	3
Meteorology(15)	-	-	-	1	-	3	1	-	-	-	5	62
Mineral, petrol, geochem(10)	-	-	-	-	-	-	-	-	-	-	-	27
Minerology, petrology(10)	1	-	1	-	-	1	1	1	1	-	6	34
Oceanography	3	1	1	4	2	1	2	3	3	9	29	74
Paleontology	-	-	-	1	-	1	-	-	-	1	3	18
Stratigraphy, sediment	-	-	1	-	2	3	1	1	1	2	11	46
Geological sciences, gen(16)	-	-	-	2	3	-	-	-	-	1	6	6
Geological sciences, oth(16)	-	-	-	-	1	-	-	2	3	1	7	7
Earth sciences, general(16)	2	2	3	-	-	-	-	-	-	-	7	34
Earth sciences, other(16)	2	1	-	-	-	-	-	-	-	-	3	24
Physical sciences, other(2)	-	-	-	-	1	2	1	-	4	1	9	9
MATHEMATICS	62	43	41	46	36	42	36	51	44	35	436	1290
Algebra	3	5	2	2	3	2	1	1	3	2	24	101
Analysis/funct analysis(17)	6	4	4	3	1	3	7	4	7	6	45	182
Applied mathematics	9	7	12	9	7	10	4	8	10	6	82	214
Computing theory	1	2	2	-	1	-	1	2	-	-	9	111
Geometry	4	2	2	2	-	1	3	-	2	2	18	44
Logic	3	-	2	-	2	2	2	2	1	-	14	18
Number theory	1	1	1	2	1	-	1	1	2	-	10	23
Operations research	4	4	2	1	-	1	5	6	1	1	25	46
Probability/math stat (18)	23	11	8	15	13	17	4	16	8	10	125	304
Topology	3	1	1	1	1	2	1	-	3	3	16	70
Mathematics, general	4	4	3	4	3	4	4	7	6	3	42	111
Mathematics, other	1	2	2	7	4	-	3	4	1	2	26	66
COMPUTER/INFORMATION SCIENCES	13	20	12	27	17	24	47	32	42	57	291	309
Computer sciences	13	20	12	22	14	21	42	28	33	47	252	270
Information sci/systems(2)	-	-	-	5	3	3	5	4	9	10	39	39

See footnotes at end of table.

Table 2. Citizenship status of science and engineering doctorates by subfield: 1960-89--continued

				Year of doctorate										
Field of study	Total 1960-1964	Total 1965-1969	Total 1960-1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-1979
NON-U.S. CITIZENS, PERMANENT RESIDENTS														
AGRICULTURAL & BIOLOGICAL SCI ..	279	640	919	218	284	307	319	273	260	199	189	185	161	2395
Agricultural sciences	69	133	202	47	76	85	75	65	70	37	27	43	29	554
Agronomy	22	33	55	12	14	10	10	3	7	2	4	5	2	69
Animal breeding/genetics(20)	16	21	37	6	4	4	1	2	-	-	-	-	1	18
Animal nutrition(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Animal sci/nutrition(21) ...	-	-	-	-	-	6	6	14	11	8	5	4	5	59
Poultry science(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Animal sciences, other(21) .	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fish/wildlife(22)	-	3	3	1	3	-	3	2	6	-	2	-	-	17
Fisheries science(22)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wildlife management(22)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wildlife/range mgmt(22)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Food sciences(23)	-	2	2	7	15	16	24	16	26	13	7	17	8	149
Food engineering(23)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Food sciences, other(23) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Forestry science(24)	8	11	19	5	3	7	4	4	3	1	4	2	2	35
Forest biology(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Forest management(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Renewable natrl resrces(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Forestry&relatd sci, oth(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Horticulture science	11	16	27	4	9	14	2	6	3	1	-	4	2	45
Plant breeding/genetics(25).	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Plant pathology(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phytopathology(25)	9	22	31	4	11	9	9	6	4	5	-	1	4	53
Plant protectn-pest mgmt(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Plant sciences, other(25) ..	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Soil sciences(26)	-	3	3	2	6	5	9	5	8	5	1	3	3	47
Soil chem/microbio(26)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Soil sciences, other(26) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Agriculture, general	1	4	5	-	-	-	-	1	-	1	-	-	-	2
Agriculture, other	2	18	20	6	11	14	7	6	2	1	4	7	2	60
Biological sciences	210	507	717	171	208	222	244	208	190	162	162	142	132	1841
Anatomy	4	16	20	5	8	7	4	7	5	5	4	2	6	53
Biochemistry	69	139	208	39	63	52	65	44	50	42	37	36	39	467
Biometrics/biostat	1	8	9	5	2	4	4	3	-	2	3	3	5	31
Biophysics	4	21	25	9	6	5	8	6	4	12	8	10	7	75
Botany, other(27)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Botany(27)	12	19	31	5	6	10	4	8	2	5	1	3	1	45
Cell biology(28)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cytology(28)	5	10	15	3	1	2	3	2	3	3	-	-	2	19
Ecology	4	6	10	2	-	2	3	2	3	4	2	1	3	22
Embryology	2	2	4	-	1	-	1	-	-	-	-	-	-	2
Endocrinology(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Entomology	8	27	35	7	10	12	12	9	3	3	3	9	5	73
Human/animal genetics(29) ..	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Plant genetics(29)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Genetics(29)	15	27	42	7	7	16	10	10	5	3	8	5	3	74
Human/animal pathology(30) .	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Plant pathology(30)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pathology(30)	3	14	17	4	7	11	13	8	7	7	8	3	2	70
Human/animal pharmacol	13	40	53	10	17	10	19	15	12	10	14	9	1	117
Human/animal physiol(31) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Animal physiology(31)	12	43	55	15	18	22	18	17	18	8	12	8	9	145
Animal/plant physiol(31) ...	7	-	7	-	-	-	-	-	-	-	-	-	-	-
Plant physiology(31)	6	17	23	3	4	4	7	2	6	5	2	3	1	37
Hydrobiology	-	2	2	3	-	-	-	1	-	-	-	-	-	4
Immunology	-	-	-	-	-	1	1	9	4	5	5	6	9	40
Microbiology(32)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bacteriology(32)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Microbiology/bacteriol(32) .	28	68	96	24	22	21	29	26	28	19	17	13	13	212
Molecular biology	-	5	5	7	6	10	6	12	9	8	7	9	3	77
Neurosciences	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nutritional sciences(33) ...	4	-	4	-	-	-	-	-	-	10	8	6	9	33
Parasitology	-	-	-	-	-	-	-	3	1	1	2	-	-	7
Toxicology(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zoology, other(34)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zoology(34)	9	28	37	5	9	10	12	2	3	1	8	3	5	58
Biological sci, general	-	3	3	6	10	7	14	6	8	4	9	7	5	76
Biological sci, other	4	12	16	12	11	16	11	16	19	5	4	6	4	104

See footnotes at end of table.

Table 2. Citizenship status of science and engineering doctorates by subfield: 1960-89--continued

	Year of doctorate											
Field of study	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1980-1989	Total 1960-1989
NON-U.S. CITIZENS, PERMANENT RESIDENTS												
AGRICULTURAL & BIOLOGICAL SCI	186	159	140	150	149	151	165	208	263	222	1793	5107
Agricultural sciences	35	35	23	36	35	43	48	48	71	45	419	1175
Agronomy	5	4	3	3	7	2	5	5	10	4	48	172
Animal breeding/genetics(20)	1	1	-	2	1	1	1	2	1	1	11	66
Animal nutrition(21)	-	-	-	2	3	-	2	2	2	4	15	15
Animal sci/nutrition(21)	3	5	4	-	-	-	-	-	-	-	12	71
Poultry science(21)	-	-	-	-	-	-	-	-	3	-	3	3
Animal sciences, other(21)	-	-	-	3	2	6	5	3	6	5	30	30
Fish/wildlife(22)	1	-	-	-	-	-	-	-	-	-	1	21
Fisheries science(22)	-	-	-	4	1	-	2	1	2	1	11	11
Wildlife management(22)	-	-	-	-	1	1	-	2	-	-	4	4
Wildlife/range mgmt(22)	-	-	-	-	-	-	-	-	2	-	2	2
Food sciences(23)	12	6	7	16	4	13	8	14	1	-	81	232
Food engineering(23)	-	-	-	-	-	-	-	-	3	1	4	4
Food sciences, other(23)	-	-	-	-	-	-	-	-	12	11	23	23
Forestry science(24)	-	3	1	3	1	1	2	3	-	-	14	68
Forest biology(24)	-	-	-	-	-	-	-	-	-	1	1	1
Forest management(24)	-	-	-	-	-	-	-	-	2	-	2	2
Renewable natrl resrces(24)	-	-	-	-	-	-	-	-	1	1	2	2
Forestry&relatd sci, oth(24)	-	-	-	-	-	-	-	-	1	2	3	3
Horticulture science	1	5	2	2	1	4	2	6	5	4	32	104
Plant breeding/genetics(25)	-	-	-	-	2	4	3	4	3	2	18	18
Plant pathology(25)	-	-	-	1	2	2	4	2	2	2	15	15
Phytopathology(25)	2	3	2	-	-	-	-	-	-	-	7	91
Plant protectn-pest mgmt(25)	-	-	-	-	-	-	-	-	-	1	1	1
Plant sciences, other(25)	-	-	-	-	2	1	-	1	2	-	6	6
Soil sciences(26)	4	5	2	-	4	5	10	3	1	-	34	84
Soil chem/microbio(26)	-	-	-	-	-	-	-	-	1	1	2	2
Soil sciences, other(26)	-	-	-	-	-	-	-	-	10	2	12	12
Agriculture, general	-	-	1	-	-	1	-	-	-	1	3	10
Agriculture, other	6	3	1	-	4	2	4	-	1	1	22	102
Biological sciences	151	124	117	114	114	108	117	160	192	177	1374	3932
Anatomy	4	3	2	1	1	6	-	4	4	5	30	103
Biochemistry	19	31	34	30	26	28	19	19	31	34	271	946
Biometrics/biostat	3	-	1	3	3	2	-	2	5	6	25	65
Biophysics	10	6	2	2	4	-	3	5	1	3	36	136
Botany, other(27)	-	-	-	1	3	-	4	4	3	3	18	18
Botany(27)	3	2	2	-	-	-	-	-	-	-	7	83
Cell biology(28)	-	-	-	1	4	4	3	6	3	7	28	28
Cytology(28)	4	1	-	-	-	-	-	-	-	-	5	39
Ecology	4	2	2	4	3	2	2	3	6	4	32	64
Embryology	2	-	1	-	-	1	-	-	1	-	5	11
Endocrinology(2)	-	-	-	2	5	-	-	-	-	-	7	7
Entomology	7	7	3	4	3	-	5	-	4	4	37	145
Human/animal genetics(29)	-	-	-	3	3	3	3	5	7	3	27	27
Plant genetics(29)	-	-	-	-	1	2	1	-	-	-	4	4
Genetics(29)	6	3	6	-	-	-	-	-	-	-	15	131
Human/animal pathology(30)	-	-	-	4	2	2	1	12	7	6	34	34
Plant pathology(30)	-	-	-	-	-	1	1	3	2	1	8	8
Pathology(30)	8	2	3	-	-	-	-	-	-	-	13	100
Human/animal pharmacol	17	11	7	3	7	8	9	12	9	6	89	259
Human/animal physiol(31)	-	-	-	5	7	9	8	12	7	13	61	61
Animal physiology(31)	6	9	7	-	-	-	-	-	-	-	22	222
Animal/plant physiol(31)	-	-	-	-	-	-	-	-	-	-	-	7
Plant physiology(31)	4	3	4	3	1	-	1	5	7	2	30	90
Hydrobiology	-	-	-	-	-	-	-	-	-	-	-	6
Immunology	9	4	5	4	4	7	5	3	9	7	57	97
Microbiology(32)	-	-	-	10	10	10	14	11	18	18	91	91
Bacteriology(32)	-	-	-	1	1	-	2	-	-	-	4	4
Microbiology/bacteriol(32)	20	13	12	-	-	-	-	-	-	-	45	353
Molecular biology	7	7	3	6	6	4	9	9	19	18	88	170
Neurosciences	-	-	7	4	2	5	3	6	6	9	42	42
Nutritional sciences(33)	4	5	6	8	5	2	6	10	13	8	67	104
Parasitology	1	-	-	-	-	2	-	1	2	1	7	14
Toxicology(2)	-	-	-	3	2	-	2	7	6	1	21	21
Zoology, other(34)	-	-	-	4	3	2	4	2	3	1	19	19
Zoology(34)	3	2	3	-	-	-	-	-	-	-	8	103
Biological sci, general	6	8	6	4	7	6	6	8	10	9	70	149
Biological sci, other	4	5	1	4	1	2	6	11	9	8	51	171

See footnotes at end of table.

Table 2. Citizenship status of science and engineering doctorates by subfield: 1960-89--continued

				Year of doctorate										
Field of study	Total 1960-1964	Total 1965-1969	Total 1960-1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-1979
NON-U.S. CITIZENS, PERMANENT RESIDENTS														
SOCIAL SCIENCES	208	549	757	199	218	223	220	190	187	172	160	171	155	1895
Agricultural economics	-	7	7	4	12	8	16	8	12	7	6	3	7	83
Anthropology	6	26	32	8	12	10	10	11	8	12	13	14	16	114
Area studies	-	4	4	2	6	2	2	3	5	3	-	3	-	26
Criminology(35)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Demography(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Econometrics	4	16	20	3	3	7	1	2	5	3	2	1	2	29
Economics	87	200	287	62	57	56	77	53	46	45	43	52	50	541
Geography	16	29	45	9	14	11	9	6	10	8	12	9	4	92
History of science(36)	-	-	-	-	-	-	2	3	1	3	-	2	-	11
International relations	20	49	69	6	13	15	5	7	8	6	4	10	6	80
Linguistics	15	37	52	12	12	14	16	13	14	8	12	9	12	122
Pol sci/government(37)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Political science(37)	-	-	-	-	-	-	-	-	-	22	32	28	14	96
Pol sci, public admin(37)	29	94	123	28	38	42	32	42	37	1	-	-	-	220
Public policy studies(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sociology	27	67	94	38	29	34	30	30	27	35	29	25	29	306
Statistics	-	8	8	12	14	15	11	3	3	-	-	5	3	66
Urban studies(38)	-	-	-	-	3	1	2	4	5	13	4	6	7	45
Social sciences, general	1	1	2	-	-	2	1	1	1	2	-	-	1	8
Social sciences, other	3	11	14	15	5	6	6	4	5	4	3	4	4	56
PSYCHOLOGY	79	121	200	41	50	51	50	47	55	41	47	54	45	481
Clinical	37	35	72	9	11	4	10	10	16	6	10	13	8	97
Cognitive(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Comparative(39)	-	2	2	1	2	-	-	-	-	1	1	-	-	5
Counseling(40)	2	4	6	2	5	3	3	2	2	3	1	3	5	29
Developmental(41)	-	8	8	2	3	6	4	5	4	2	6	2	4	38
Educational	2	6	8	4	5	5	5	5	-	4	2	5	4	39
Exper, compar, physiol(39)	7	-	7	-	-	-	-	-	-	-	-	-	-	-
Experimental(39)	9	25	34	7	4	6	9	6	6	3	6	7	5	59
Indust/organizational(42)	2	4	6	2	1	2	-	2	3	2	3	3	3	21
Physiological(39)	3	11	14	3	1	4	2	2	1	3	1	3	1	21
Quantitative(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Personality	2	-	2	-	3	3	1	-	1	-	-	1	-	9
Psychometrics	4	5	9	1	2	2	3	-	1	1	1	1	-	12
School	-	-	-	-	-	2	2	3	1	4	1	2	1	16
Social	10	10	20	6	6	4	4	5	9	5	4	4	3	50
Psychology, general	1	8	9	2	5	5	5	5	7	6	7	3	6	51
Psychology, other	-	3	3	2	2	5	2	2	4	1	4	7	5	34
TOTAL, ENGINEERING	363	1138	1501	434	534	624	561	517	420	391	326	325	323	4455
Aeronaut/astronautical(43)	19	65	84	23	26	32	25	17	16	8	10	14	15	186
Agricultural	6	13	19	2	7	5	4	6	4	3	1	3	4	39
Bioengineering/biomed(44)	-	2	2	6	4	6	8	11	5	6	4	7	5	62
Ceramic	9	10	19	3	3	3	2	1	3	6	7	3	2	33
Chemical	57	129	186	82	62	71	78	76	65	49	45	46	46	620
Civil	46	150	196	58	88	85	71	57	42	50	44	27	21	543
Communications(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Computer	-	-	-	-	-	-	-	-	9	13	18	13	12	65
Electrical/electronics(45)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Electrical(45)	75	212	287	74	102	113	91	88	60	74	64	52	66	784
Electronics(45)	22	80	102	19	15	26	16	17	12	8	11	7	12	143
Engineering mechanics	35	137	172	34	49	66	45	42	33	18	15	10	11	323
Engineering physics(46)	9	47	56	3	6	9	5	6	1	2	-	1	3	36
Engineering science(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Environmental health eng(47)	5	15	20	3	4	10	14	16	8	10	4	6	4	79
Fuel tech/petro eng(8)	-	5	5	4	4	2	4	2	2	1	-	-	1	20
Industrial	4	24	28	9	12	20	8	10	10	4	9	5	9	96
Materials science	-	3	3	2	12	24	21	23	20	23	20	17	22	184
Mechanical	49	115	164	38	54	72	67	66	52	44	26	44	39	502
Metallurgical(48)	20	55	75	23	30	28	18	18	25	15	12	18	10	197
Mining/mineral(49)	-	4	4	2	7	3	4	1	2	1	-	3	-	23
Naval arch/marine engin(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nuclear(46)	-	9	9	14	3	14	17	9	10	15	10	17	9	118
Ocean(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Operations research	-	-	-	-	1	9	21	18	14	13	8	9	7	100
Petroleum(50)	-	-	-	-	-	-	2	3	5	2	4	5	2	23
Polymer(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Systems(51)	-	-	-	-	-	-	-	-	7	10	6	7	11	41
Engineering, general	1	11	12	5	8	-	8	7	2	7	1	2	5	45
Engineering, other	6	52	58	30	37	26	32	23	13	9	7	9	7	193
TOTAL, NON-SCI/ENGINEERING(52)	347	1020	1367	334	416	445	419	426	445	388	378	352	375	3978
TOTAL, ALL FIELDS	1631	4353	5984	1576	1907	2093	1998	1826	1714	1494	1368	1344	1320	16640

See footnotes at end of table.

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Table 2. Citizenship status of science and engineering doctorates by subfield: 1960-89--continued

Field of study	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1980-1989	Total 1960-1989
	Year of doctorate											
NON-U.S. CITIZENS, PERMANENT RESIDENTS												
SOCIAL SCIENCES	166	160	170	142	164	171	174	209	185	203	1744	4396
Agricultural economics	7	12	9	9	9	4	6	10	7	10	83	173
Anthropology	14	10	6	9	8	14	17	17	14	14	123	269
Area studies	-	1	1	-	-	4	-	1	1	1	9	39
Criminology(35)	1	2	-	2	-	2	-	-	-	1	8	8
Demography(2)	-	-	-	-	-	-	3	1	3	1	8	8
Econometrics	3	5	2	3	5	3	5	1	2	3	32	81
Economics	51	55	61	56	63	57	54	74	55	52	578	1406
Geography	2	2	5	7	6	8	4	7	4	7	52	189
History of science(36)	-	-	-	-	1	1	-	-	1	-	3	14
International relations	10	4	6	7	8	8	8	8	5	10	74	223
Linguistics	13	3	12	6	11	15	10	10	15	23	118	292
Pol sci/government(37)	-	-	-	12	26	16	22	30	24	33	163	163
Political science(37)	19	25	21	-	-	-	-	-	-	-	65	161
Pol sci, public admin(37)	-	-	-	-	-	-	-	-	-	-	-	343
Public policy studies(2)	-	-	-	3	5	3	2	1	6	2	22	22
Sociology	34	27	28	17	14	17	24	28	28	25	242	642
Statistics	4	2	6	1	2	5	8	7	4	3	42	116
Urban studies(38)	4	6	6	3	5	9	3	5	7	3	51	96
Social sciences, general	1	-	1	1	-	-	2	1	1	5	12	22
Social sciences, other	3	6	6	6	1	5	6	8	8	10	59	129
PSYCHOLOGY	50	47	47	64	51	59	65	59	60	52	554	1235
Clinical	10	8	14	17	19	14	20	18	23	17	160	329
Cognitive(2)	-	-	-	1	1	-	2	3	2	1	10	10
Comparative(39)	-	-	-	-	1	-	1	-	-	1	3	10
Counseling(40)	2	9	2	6	7	5	11	6	9	6	63	98
Developmental(41)	4	3	5	3	2	2	5	7	3	3	37	83
Educational	5	4	2	10	5	3	3	1	3	1	37	84
Exper, compar, physiol(39)	-	-	-	-	-	-	-	-	-	-	-	7
Experimental(39)	9	4	3	3	1	3	3	2	3	4	35	128
Indust/organizational(42)	-	2	1	2	2	2	-	1	-	1	11	38
Physiological(39)	3	2	1	1	-	5	1	2	2	-	17	52
Quantitative(2)	-	-	-	-	-	1	1	1	-	2	5	5
Personality	-	-	1	1	-	2	1	-	1	1	7	18
Psychometrics	1	-	-	-	-	-	-	-	-	1	2	23
School	2	-	2	4	-	1	2	-	1	-	12	28
Social	2	4	4	3	2	8	7	6	3	2	41	111
Psychology, general	6	7	6	8	5	7	5	8	7	8	67	127
Psychology, other	6	4	6	5	6	6	3	4	3	4	47	84
TOTAL, ENGINEERING	25[illegible]	301	296	319	274	315	343	355	367	361	3230	9186
Aeronaut/astronautical(43)	11	6	10	13	11	17	5	8	14	8	103	373
Agricultural	1	4	3	7	5	2	4	7	3	8	44	102
Bioengineering/biomed(44)	7	9	3	2	6	4	2	4	7	4	48	112
Ceramic	3	5	3	3	2	1	1	5	2	3	28	80
Chemical	40	43	37	38	32	39	51	48	45	55	428	1234
Civil	24	34	27	30	40	38	45	36	44	54	372	1111
Communications(2)	-	-	-	5	2	7	2	6	3	5	30	30
Computer	9	17	11	16	8	11	11	7	12	9	111	176
Electrical/electronics(45)	-	-	-	60	59	65	70	60	90	83	487	487
Electrical(45)	43	51	56	5	-	-	-	-	-	-	155	1226
Electronics(45)	9	7	6	4	-	-	-	-	-	-	26	271
Engineering mechanics	10	7	17	9	11	5	9	13	13	12	106	601
Engineering physics(46)	2	3	-	-	1	-	2	-	-	1	9	101
Engineering science(2)	-	-	-	1	2	4	4	3	2	2	18	18
Environmental health eng(47)	5	1	8	3	3	2	8	5	2	4	41	140
Fuel tech/petro eng(8)	-	-	-	-	-	-	-	-	-	-	-	25
Industrial	10	7	11	18	6	9	14	13	11	8	107	231
Materials science	19	18	13	15	17	13	19	22	19	10	165	352
Mechanical	49	37	48	38	28	53	49	54	58	53	467	1133
Metallurgical(48)	14	13	7	10	9	7	13	11	6	8	98	370
Mining/mineral(49)	-	2	1	4	4	1	2	4	2	2	22	49
Naval arch/marine engin(2)	-	-	-	-	1	-	4	-	1	1	7	7
Nuclear(46)	14	14	8	11	11	5	8	11	4	4	90	217
Ocean(2)	-	-	-	2	-	2	-	3	2	1	10	10
Operations research	7	9	6	4	4	4	5	9	2	3	53	153
Petroleum(50)	7	3	7	1	-	5	3	3	4	1	34	57
Polymer(2)	-	-	-	2	3	8	3	5	2	6	29	29
Systems(51)	4	7	4	7	5	5	2	4	8	5	51	92
Engineering, general	2	3	1	4	1	1	2	10	8	5	37	94
Engineering, other	9	1	9	7	3	7	5	4	3	6	54	305
TOTAL, NON-SCI/ENGINEERING(52)	338	388	374	377	389	395	445	492	489	499	4186	9531
TOTAL, ALL FIELDS	1291	1281	1228	1275	1224	1324	1432	1578	1618	1605	13856	36480

See footnotes at end of table.

Table 2. Citizenship status of science and engineering doctorates by subfield: 1960-89--continued

	Year of doctorate													
Field of study	Total 1960-1964	Total 1965-1969	Total 1960-1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-1979
NON-U.S. CITIZENS, TEMPORARY RESIDENTS														
TOTAL, SCIENCE/ENGINEERING	4854	8473	13327	2053	2127	2212	2465	2692	2787	2733	2661	2565	2657	24952
TOTAL, SCIENCES	3891	6456	10347	1579	1605	1693	1840	1978	1966	1918	1886	1795	1840	18100
PHYSICAL SCIENCES	995	1610	2605	363	363	387	437	413	458	431	406	397	415	4070
Physics/astronomy	400	720	1120	187	190	209	248	230	244	228	207	181	207	2131
Acoustics	4	4	8	-	2	1	1	-	1	-	3	1	2	11
Astronomy(1)	-	3	3	2	3	3	10	6	7	8	2	1	6	48
Astronomy/astrophysics(1)	14	35	49	-	-	-	-	-	-	-	-	-	-	-
Astrophysics(1)	-	6	6	10	4	6	9	6	13	9	8	10	7	82
Atomic/molecular	27	45	72	13	15	11	15	16	27	17	15	12	6	147
Electron(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Electromagnetism(3)	8	15	23	1	2	1	2	1	-	1	-	1	2	11
Elementary particle	76	152	228	47	40	39	42	32	21	30	28	27	22	328
Fluids	8	29	37	2	1	-	4	2	6	1	2	3	-	21
Mechanics(4)	3	4	7	1	-	2	1	2	1	1	-	-	-	8
Nuclear(5)	107	106	213	21	20	25	31	27	27	23	15	16	21	226
Optics	6	6	12	2	1	3	4	5	7	6	4	7	10	49
Plasma	-	8	8	9	12	15	10	7	9	9	10	9	14	104
Polymer(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Solid state	70	190	260	35	45	43	55	72	54	53	57	47	48	509
Theoretical physics(6)	40	-	40	-	-	-	-	-	-	-	-	-	-	-
Thermal(7)	3	9	12	2	1	5	2	3	1	1	2	3	1	21
Physics, general	8	51	59	24	22	38	47	41	45	51	40	36	46	390
Physics, other	26	57	83	18	22	17	15	10	25	18	21	8	22	176
Chemistry	595	890	1485	176	173	178	189	183	214	203	199	216	208	1939
Agricultural/food	68	66	134	13	9	5	2	2	2	2	1	3	2	41
Analytical	33	40	73	10	5	6	5	11	15	16	8	12	18	106
Inorganic	33	71	104	13	9	20	12	15	17	13	25	21	13	158
Nuclear	16	20	36	3	4	2	-	4	1	3	3	-	2	22
Organic	198	285	483	53	62	41	63	38	79	57	49	58	65	565
Pharmaceutical	44	69	113	12	8	7	5	2	6	7	8	3	5	63
Physical	166	247	413	45	46	43	54	45	45	46	40	49	35	448
Polymer	-	-	-	-	-	-	2	11	7	9	13	12	22	76
Theoretical	15	28	43	6	5	6	6	6	6	5	8	8	8	64
Chemistry, general	13	35	48	14	14	26	31	39	31	35	36	43	27	296
Chemistry, other	9	29	38	7	11	22	9	10	5	10	8	7	11	100
EARTH, ATMOS, & MARINE SCI	181	293	474	68	41	64	70	91	89	94	98	66	69	750
Applied geo, geo eng(8)	21	28	49	-	-	-	-	-	-	-	-	-	-	-
Applied geology(8)	-	9	9	3	-	7	3	11	7	6	3	1	1	42
Atmos/meteorol sci, gen(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Atmos/meteorol sci, other	-	-	-	-	-	-	-	-	-	6	8	1	11	26
Atmospheric dynamics	-	-	-	-	-	-	-	-	-	3	6	2	5	16
Atmospheric phys/chem	-	-	-	-	-	-	-	-	-	2	1	2	1	6
Environmental sciences(9)	-	-	-	-	-	4	2	6	8	4	4	1	2	31
Geochemistry(10)	-	8	8	8	6	6	6	7	8	7	3	4	7	62
Geology(11)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Structural geology(11)	2	10	12	-	1	4	3	3	1	1	3	2	5	23
Geomorph/glacial geology	6	5	11	2	1	1	1	3	1	1	1	1	-	12
Geophysics/seismology(12)	-	-	-	-	-	-	-	-	-	9	16	12	10	47
Geophysics(12)	24	38	62	15	5	12	11	13	21	10	-	-	-	87
Hydrology/water res(13)	3	12	15	4	5	3	4	6	-	4	8	9	3	46
Marine sciences(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marine sciences, other(14)	-	-	-	-	-	-	-	-	-	-	-	-	2	2
Meteorology(15)	21	27	48	7	2	3	6	7	11	5	-	-	-	41
Mineral, petrol, geochem(10)	52	62	114	-	-	-	-	-	-	-	-	-	-	-
Minerology, petrology(10)	-	8	8	7	5	7	8	8	10	2	4	-	1	52
Oceanography	5	18	23	3	3	3	7	6	7	9	12	14	11	75
Paleontology	11	19	30	1	1	5	1	1	2	3	-	1	1	16
Stratigraphy, sediment	28	31	59	8	3	-	6	4	2	9	10	3	3	48
Geological sciences, gen(16)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Geological sciences, oth(16)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Earth sciences, general(16)	6	8	14	5	4	3	7	8	5	9	9	7	2	59
Earth sciences, other(16)	2	10	12	5	5	6	5	8	6	4	10	6	4	59
Physical sciences, other(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MATHEMATICS	294	491	785	134	152	169	173	224	197	183	167	155	149	1703
Algebra	37	64	101	14	16	17	11	18	20	19	12	13	10	150
Analysis/funct analysis(17)	53	98	151	28	27	26	32	34	36	25	33	19	22	282
Applied mathematics	32	65	97	18	18	20	24	31	11	23	17	24	29	215
Computing theory	9	33	42	8	16	21	25	37	27	16	12	7	3	172
Geometry	11	19	30	6	7	7	6	8	4	7	7	4	4	60
Logic	9	14	23	4	4	5	3	1	4	7	4	5	3	40
Number theory	13	15	28	3	6	3	4	4	6	3	4	1	1	35
Operations research	-	-	-	-	-	-	-	9	15	4	10	8	10	56
Probability/math stat (18)	90	98	188	14	9	23	29	33	31	45	31	38	37	290
Topology	30	47	77	12	12	9	10	11	12	12	13	6	8	105
Mathematics, general	8	25	33	18	22	21	24	32	27	21	18	21	22	226
Mathematics, other	2	13	15	9	15	17	5	6	4	1	6	9	-	72
COMPUTER/INFORMATION SCIENCES	-	-	-	-	-	-	-	-	-	-	3	26	32	61
Computer sciences	-	-	-	-	-	-	-	-	-	-	3	26	32	61
Information sci/systems(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-

See footnotes at end of table.

Table 2. Citizenship status of science and engineering doctorates by subfield: 1960-89--continued

Field of study	Year of doctorate											
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1980-1989	Total 1960-1989
NON-U.S. CITIZENS, TEMPORARY RESIDENTS												
TOTAL, SCIENCE/ENGINEERING	2710	2962	3127	3400	3692	4028	4141	4450	4919	5333	38762	77041
TOTAL, SCIENCES	1859	2020	2097	2230	2423	2609	2769	2918	3197	3409	25531	53978
PHYSICAL SCIENCES	426	442	506	539	564	620	758	798	865	888	6406	13081
Physics/astronomy	189	203	242	256	266	290	365	399	423	427	3060	6311
Acoustics	2	1	3	2	6	2	3	4	3	3	29	48
Astronomy(1)	3	5	4	5	7	6	7	10	12	9	68	119
Astronomy/astrophysics(1)	-	-	-	-	-	-	-	-	-	-	-	49
Astrophysics(1)	8	3	6	7	8	8	10	13	8	18	89	177
Atomic/molecular	9	11	23	18	16	15	23	24	19	28	186	405
Electron(2)	-	-	-	-	2	1	1	-	-	2	6	6
Electromagnetism(3)	-	-	-	-	-	-	-	-	-	-	-	34
Elementary particle	26	21	35	40	43	48	49	54	61	43	420	976
Fluids	4	5	4	2	2	5	3	10	6	4	45	103
Mechanics(4)	-	-	-	-	-	-	-	-	-	-	-	15
Nuclear(5)	16	16	14	19	14	22	35	24	32	23	215	654
Optics	10	11	9	19	12	13	12	14	14	23	137	198
Plasma	8	10	15	17	13	15	13	22	17	19	149	261
Polymer(2)	-	-	-	4	4	3	4	5	11	3	34	34
Solid state	45	58	51	55	68	79	110	112	99	121	798	1567
Theoretical physics(6)	-	-	-	-	-	-	-	-	-	-	-	40
Thermal(7)	-	3	-	-	-	-	-	-	-	-	3	36
Physics, general	45	49	58	53	51	46	70	72	110	91	645	1094
Physics, other	13	10	20	15	20	27	25	35	31	40	236	495
Chemistry	237	239	264	283	298	330	393	399	442	461	3346	6770
Agricultural/food	-	-	-	-	-	-	-	-	-	-	-	175
Analytical	18	20	19	30	37	36	43	56	49	59	367	546
Inorganic	22	18	29	25	28	38	43	39	44	53	339	601
Nuclear	2	1	5	3	6	1	3	1	2	-	24	82
Organic	81	64	85	84	82	87	89	104	124	117	917	1965
Pharmaceutical	14	7	11	18	7	9	10	15	19	10	120	296
Physical	38	35	34	51	46	54	56	63	72	81	530	1391
Polymer	17	22	17	16	15	25	18	32	32	28	222	298
Theoretical	7	6	8	10	7	5	11	7	12	18	91	198
Chemistry, general	31	55	39	26	48	55	96	65	72	75	562	906
Chemistry, other	7	11	17	20	22	20	24	17	16	20	174	312
EARTH, ATMOS, & MARINE SCI	80	85	81	106	106	119	106	125	137	121	1066	2290
Applied geo, geo eng(8)	-	-	-	-	-	-	-	-	-	-	-	49
Applied geology(8)	5	4	8	2	1	1	-	3	1	1	26	77
Atmos/meteorol sci, gen(2)	-	-	-	3	1	4	1	7	3	6	25	25
Atmos/meteorol sci, other	14	12	3	3	3	3	2	5	-	3	48	74
Atmospheric dynamics	6	4	5	5	8	6	6	4	7	4	55	71
Atmospheric phys/chem	1	1	-	2	2	1	3	3	8	4	25	31
Environmental sciences(9)	3	9	6	9	5	6	4	3	6	8	59	90
Geochemistry(10)	6	1	7	3	5	9	6	8	6	6	57	127
Geology(11)	-	-	-	15	22	22	8	16	19	14	116	116
Structural geology(11)	-	-	1	-	-	-	-	-	-	-	1	36
Geomorph/glacial geology	3	1	2	1	1	1	2	2	1	-	14	37
Geophysics/seismology(12)	16	12	13	16	15	22	22	27	26	20	189	236
Geophysics(12)	-	-	-	-	-	-	-	-	-	-	-	149
Hydrology/water res(13)	5	8	6	8	4	6	1	6	9	8	61	122
Marine sciences(2)	-	-	-	4	4	4	3	6	5	6	32	32
Marine sciences, other(14)	-	3	6	-	-	-	-	-	-	-	9	11
Meteorology(15)	-	-	-	4	5	6	12	6	13	5	51	140
Mineral, petrol, geochem(10)	-	-	-	-	-	-	-	-	-	-	-	114
Minerology, petrology(10)	1	3	3	4	1	3	2	2	2	4	25	85
Oceanography	6	6	7	16	14	13	17	13	16	12	120	218
Paleontology	1	-	-	-	3	1	4	2	2	1	14	60
Stratigraphy, sediment	2	5	2	5	2	3	1	1	3	3	27	134
Geological sciences, gen(16)	-	-	-	2	1	1	2	4	2	8	20	20
Geological sciences, oth(16)	-	-	-	1	7	3	1	4	3	6	25	25
Earth sciences, general(16)	7	12	6	-	-	-	-	-	-	-	25	98
Earth sciences, other(16)	4	4	6	-	-	-	-	-	-	-	14	85
Physical sciences, other(2)	-	-	-	3	2	4	9	3	5	2	28	28
MATHEMATICS	139	186	192	209	232	238	272	302	305	343	2418	4906
Algebra	10	14	12	16	21	21	22	24	21	20	181	432
Analysis/funct analysis(17)	17	30	31	28	30	27	33	42	22	47	307	740
Applied mathematics	18	27	24	29	26	46	48	48	62	71	399	711
Computing theory	1	3	4	3	5	2	5	3	3	3	32	246
Geometry	4	2	8	18	10	14	14	19	22	19	130	220
Logic	1	1	1	4	9	6	6	8	8	6	50	113
Number theory	6	3	3	7	7	7	5	4	15	6	63	126
Operations research	12	14	15	10	12	8	11	10	11	9	112	168
Probability/math stat (18)	39	50	53	46	64	61	53	58	73	67	564	1042
Topology	6	10	5	10	11	9	13	10	9	13	96	278
Mathematics, general	18	23	27	23	26	25	41	60	47	63	353	612
Mathematics, other	7	9	9	15	11	12	21	16	12	19	131	218
COMPUTER/INFORMATION SCIENCES	43	40	59	72	89	89	123	143	176	179	1013	1074
Computer sciences	43	40	59	68	78	71	112	122	152	163	908	969
Information sci/systems(2)	-	-	-	4	11	18	11	21	24	16	105	105

See footnotes at end of table.

Table 2. Citizenship status of science and engineering doctorates by subfield: 1960-89--continued

Field of study	Year of doctorate													
	Total 1960-1964	Total 1965-1969	Total 1960-1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-1979
NON-U.S. CITIZENS, TEMPORARY RESIDENTS														
AGRICULTURAL & BIOLOGICAL SCI	1501	2545	4046	560	549	537	548	634	584	557	575	559	562	5665
Agricultural sciences	520	927	1447	199	237	232	234	271	267	244	257	267	265	2473
Agric business & mgmt (19)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Agronomy	188	297	485	51	57	41	52	58	54	66	50	47	57	533
Animal breeding/genetics(20)	81	163	244	19	21	13	5	3	4	3	7	4	4	83
Animal nutrition(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Animal sci/nutrition(21)	-	-	-	-	-	18	31	39	35	26	27	34	34	244
Dairy science(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Poultry science(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Animal sciences, other(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fish/wildlife(22)	14	8	22	4	4	1	4	7	5	4	5	8	4	46
Fisheries science(22)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wildlife management(22)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wildlife/range mgmt(22)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Food sciences(23)	-	12	12	6	25	20	28	28	37	25	46	34	35	284
Food engineering(23)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Food sciences, other(23)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Forestry science(24)	27	45	72	11	12	11	16	23	21	22	11	22	22	171
Forest biology(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Forest engineering(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Forest management(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wood science(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Renewable natrl resrces(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Forestry&relatd sci, oth(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Horticulture science	68	110	178	22	18	29	15	17	22	20	20	23	16	202
Plant breeding/genetics(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Plant pathology(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phytopathology(25)	114	173	287	32	31	28	23	25	29	26	25	29	21	269
Plant protectn-pest mgmt(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Plant sciences, other(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Soil sciences(26)	-	16	16	20	27	39	41	45	30	32	37	40	38	349
Soil chem/microbio(26)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Soil sciences, other(26)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Agriculture, general	3	13	16	2	1	2	-	4	7	3	6	3	5	33
Agriculture, other	25	90	115	32	41	30	19	22	23	17	23	23	29	259
Biological sciences	981	1618	2599	361	312	305	314	363	317	313	318	292	297	3192
Anatomy	24	27	51	10	9	4	3	4	7	1	6	9	5	58
Biochemistry	228	385	613	69	66	46	51	66	57	65	54	66	51	591
Biometrics/biostat	15	17	32	4	5	6	5	12	4	7	10	7	3	63
Biophysics	16	34	50	5	9	14	17	16	9	10	18	5	13	116
Botany, other(27)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Botany(27)	94	103	197	19	16	19	15	22	17	17	12	15	15	167
Cell biology(28)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cytology(28)	8	16	24	4	3	-	3	-	6	-	1	3	-	20
Ecology	13	23	36	10	5	9	13	12	11	4	11	8	5	88
Embryology	3	9	12	2	2	2	1	2	2	2	-	-	-	13
Endocrinology(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Entomology	110	149	259	30	30	31	35	32	34	26	33	22	36	309
Human/animal genetics(29)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Plant genetics(29)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Genetics(29)	111	175	286	31	34	24	25	29	25	30	11	15	17	241
Human/animal pathology(30)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Plant pathology(30)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pathology(30)	17	38	55	8	10	8	7	9	5	8	8	4	10	77
Human/animal pharmacol	34	78	112	19	6	13	19	16	8	11	11	12	18	133
Human/animal physiol(31)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Animal physiology(31)	33	109	142	33	24	24	22	23	19	17	31	19	14	226
Animal/plant physiol(31)	29	-	29	-	-	-	-	-	-	-	-	-	-	-
Plant physiology(31)	39	99	138	15	17	14	18	19	14	11	13	6	13	140
Hydrobiology	3	3	6	1	1	1	1	-	-	-	-	-	-	4
Immunology	-	-	-	-	-	2	2	6	5	12	6	6	3	42
Microbiology(32)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bacteriology(32)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Microbiology/bacteriol(32)	121	199	320	44	23	31	20	35	27	26	22	31	19	278
Molecular biology	-	10	10	7	5	10	10	11	16	9	13	14	15	110
Neurosciences	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nutritional sciences(33)	9	-	9	-	-	-	-	-	-	16	22	17	14	69
Parasitology	-	-	-	-	-	-	-	3	3	-	2	3	5	16
Toxicology(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zoology, other(34)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zoology(34)	62	87	149	19	15	15	13	13	16	14	13	6	9	133
Biological sci, general	3	17	20	10	16	11	13	13	11	17	11	15	17	134
Biological sci, other	9	40	49	21	16	21	21	20	21	10	10	9	15	164

See footnotes at end of table.

Table 2. Citizenship status of science and engineering doctorates by subfield: 1960-89--continued

Field of study	Year of doctorate 1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1980-1989	Total 1960-1989
NON-U.S. CITIZENS, TEMPORARY RESIDENTS												
AGRICULTURAL & BIOLOGICAL SCI ..	592	613	603	629	675	779	711	781	901	954	7238	16949
Agricultural sciences	296	325	260	307	314	355	320	289	345	355	3166	7086
Agric business & mgmt (19) .	-	-	-	-	-	-	-	-	-	1	1	1
Agronomy	64	60	53	60	60	58	56	46	55	48	560	1578
Animal breeding/genetics(20)	5	4	2	7	9	9	10	9	12	10	77	404
Animal nutrition(21)	-	-	-	11	20	25	16	16	14	14	116	116
Animal sci/nutrition(21) ...	30	54	28	-	-	-	-	-	-	-	112	356
Dairy science(21)	-	-	-	-	-	-	-	-	2	4	6	6
Poultry science(21)	-	-	-	-	-	-	-	-	3	5	8	8
Animal sciences, other(21) .	-	-	-	31	28	28	24	20	19	25	175	175
Fish/wildlife(22)	13	2	8	-	-	-	-	-	-	-	23	91
Fisheries science(22)	-	-	-	9	9	2	7	4	11	13	55	55
Wildlife management(22)	-	-	-	6	3	4	2	1	1	-	17	17
Wildlife/range mgmt(22)	-	-	-	-	-	-	-	-	7	7	14	14
Food sciences(23)	38	49	45	44	47	53	54	53	10	-	393	689
Food engineering(23)	-	-	-	-	-	-	-	-	1	9	10	10
Food sciences, other(23) ...	-	-	-	-	-	-	-	-	58	62	120	120
Forestry science(24)	18	21	13	20	12	19	24	21	1	-	149	392
Forest biology(24)	-	-	-	-	-	-	-	-	4	4	8	8
Forest engineering(24)	-	-	-	-	-	-	-	-	-	1	1	1
Forest management(24)	-	-	-	-	-	-	-	-	5	5	10	10
Wood science(24)	-	-	-	-	-	-	-	-	3	10	13	13
Renewable natrl resrces(24)	-	-	-	-	-	-	-	-	3	4	7	7
Forestry&relatd sci, oth(24)	-	-	-	-	-	-	-	-	8	15	23	23
Horticulture science	27	32	20	22	15	27	15	18	23	17	216	596
Plant breeding/genetics(25).	-	-	-	19	19	25	33	18	28	16	158	158
Plant pathology(25)	-	-	-	25	21	25	27	21	19	22	160	160
Phytopathology(25)	37	27	24	-	-	-	-	-	-	-	88	644
Plant protectn-pest mgmt(25)	-	-	-	-	-	-	-	-	-	2	2	2
Plant sciences, other(25) ..	-	-	-	4	4	8	7	10	7	7	47	47
Soil sciences(26)	32	40	30	36	44	41	36	28	6	-	293	658
Soil chem/microbio(26)	-	-	-	-	-	-	-	-	10	8	18	18
Soil sciences, other(26) ...	-	-	-	-	-	-	-	-	24	34	58	58
Agriculture, general	1	4	3	4	-	1	2	2	6	2	25	74
Agriculture, other	31	32	34	9	23	30	7	22	5	10	203	577
Biological sciences	296	288	343	322	361	424	391	492	556	599	4072	9863
Anatomy	9	4	10	7	8	11	9	8	4	7	77	186
Biochemistry	53	43	49	54	62	69	72	95	110	126	733	1937
Biometrics/biostat	6	7	7	4	10	6	9	7	10	5	71	166
Biophysics	8	13	15	11	9	9	11	18	17	19	130	296
Botany, other(27)	-	-	-	9	9	17	10	14	13	18	90	90
Botany(27)	11	12	17	-	-	-	-	-	-	-	40	404
Cell biology(28)	-	-	-	7	6	7	9	9	14	12	64	64
Cytology(28)	2	4	1	-	-	-	-	-	-	-	7	51
Ecology	9	10	11	13	12	17	23	13	22	24	154	278
Embryology	-	1	1	2	2	-	-	2	-	1	9	34
Endocrinology(2)	-	-	-	3	2	3	3	4	4	8	27	27
Entomology	31	27	37	31	39	32	21	25	19	24	286	854
Human/animal genetics(29) ..	-	-	-	3	3	11	5	10	12	11	55	55
Plant genetics(29)	-	-	-	9	2	6	3	4	12	8	44	44
Genetics(29)	22	15	18	-	-	-	-	-	-	-	55	582
Human/animal pathology(30) .	-	-	-	14	8	13	9	14	13	11	82	82
Plant pathology(30)	-	-	-	3	8	10	6	10	5	3	45	45
Pathology(30)	10	16	12	-	-	-	-	-	-	-	38	170
Human/animal pharmacol	15	16	14	13	24	19	13	21	20	28	183	428
Human/animal physiol(31) ...	-	-	-	19	20	24	19	24	28	30	164	164
Animal physiology(31)	16	14	31	-	-	-	-	-	-	-	61	429
Animal/plant physiol(31) ...	-	-	-	-	-	-	-	-	-	-	-	29
Plant physiology(31)	4	11	8	12	10	12	6	9	20	8	100	378
Hydrobiology	-	-	-	-	-	-	-	-	-	-	-	10
Immunology	6	6	11	17	10	10	12	19	10	11	112	154
Microbiology(32)	-	-	-	27	32	38	40	45	35	52	269	269
Bacteriology(32)	-	-	-	1	-	2	2	1	2	2	10	10
Microbiology/bacteriol(32) .	21	32	33	-	-	-	-	-	-	-	86	684
Molecular biology	18	7	18	16	16	30	28	48	62	71	314	434
Neurosciences	-	-	1	9	10	12	7	10	13	19	81	81
Nutritional sciences(33) ...	9	14	18	16	15	24	17	20	28	24	185	263
Parasitology	5	3	4	2	3	3	4	1	4	7	36	52
Toxicology(2)	-	-	-	4	2	6	4	4	5	5	30	30
Zoology, other(34)	-	-	-	5	10	9	13	11	17	12	77	77
Zoology(34)	10	11	7	-	-	-	-	-	-	-	28	310
Biological sci, general	18	13	11	9	20	14	27	31	34	41	218	372
Biological sci, other	13	9	9	2	9	10	9	15	23	12	111	324

See footnotes at end of table.

Table 2. Citizenship status of science and engineering doctorates by subfield: 1960-89--continued

	Year of doctorate													
Field of study	Total 1960-1964	Total 1965-1969	Total 1960-1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-1979
NON-U.S. CITIZENS, TEMPORARY RESIDENTS														
SOCIAL SCIENCES	768	1310	2078	396	429	458	532	532	537	567	564	531	540	5086
Agricultural economics	-	26	26	33	50	49	57	62	58	59	54	62	69	553
Anthropology	27	34	61	15	11	8	16	17	23	28	25	32	27	202
Area studies	1	6	7	7	3	2	2	5	4	2	1	4	1	31
Criminology(35)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Demography(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Econometrics	21	33	54	6	4	6	10	6	9	8	11	7	5	72
Economics	352	594	946	141	146	158	183	182	171	194	201	178	197	1751
Geography	48	55	103	20	21	27	34	26	19	20	23	28	16	234
History of science(36)	-	-	-	-	3	3	1	3	1	4	1	2	2	20
International relations	48	64	112	10	17	13	14	23	17	26	15	19	17	171
Linguistics	46	75	121	22	30	24	35	31	33	33	39	40	36	323
Pol sci/government(37)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Political science(37)	-	-	-	-	-	-	-	-	-	75	67	52	61	255
Pol sci, public admin(37)	142	196	338	49	37	69	80	75	75	6	-	-	-	391
Public policy studies(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sociology	76	151	227	45	62	54	60	65	84	68	66	55	61	620
Statistics	-	32	32	31	21	17	17	13	16	12	17	15	11	170
Urban studies(38)	-	-	-	-	4	13	9	11	15	10	20	11	20	113
Social sciences, general	1	-	1	-	2	1	2	2	2	3	4	5	5	26
Social sciences, other	6	44	50	17	18	14	12	11	10	19	20	21	12	154
PSYCHOLOGY	152	207	359	58	71	78	80	84	101	86	73	61	73	765
Clinical	34	37	71	5	9	8	15	16	15	8	7	12	7	102
Cognitive(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Comparative(39)	5	2	7	1	-	-	1	-	1	2	-	-	-	5
Counseling(40)	7	14	21	2	5	4	4	6	9	7	6	7	7	57
Developmental(41)	6	13	19	4	4	2	7	5	10	6	5	3	7	53
Educational	8	9	17	2	1	6	4	2	4	3	7	3	8	40
Exper, compar, physiol(39)	18	-	18	-	-	-	-	-	-	-	-	-	-	-
Experimental(39)	23	40	63	11	16	11	13	12	12	13	17	9	10	124
Indust/organizational(42)	7	11	18	3	6	3	5	6	4	8	3	2	2	42
Physiological(39)	4	15	19	5	7	5	5	7	8	3	6	6	3	55
Quantitative(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Personality	6	6	12	3	1	1	1	2	-	5	1	1	1	16
Psychometrics	6	8	14	2	1	5	-	3	2	2	2	1	2	20
School	1	3	4	-	-	-	-	1	1	2	-	-	2	6
Social	24	28	52	17	11	20	14	16	19	18	7	8	7	137
Psychology, general	2	15	17	2	9	4	7	5	10	6	7	3	8	61
Psychology, other	1	6	7	1	1	9	4	3	6	3	5	6	9	47
TOTAL, ENGINEERING	963	2017	2980	474	522	519	625	714	821	815	775	770	817	6852
Aeronaut/astronautical(43)	43	96	139	23	27	22	27	28	28	28	45	39	35	302
Agricultural	19	32	51	14	12	16	20	21	18	12	15	19	39	186
Bioengineering/biomed(44)	-	1	1	1	7	7	5	6	7	6	8	10	7	64
Ceramic	5	10	15	2	2	7	3	3	4	6	4	2	4	37
Chemical	159	257	416	52	59	56	83	106	111	101	97	83	98	846
Civil	183	388	571	86	104	85	106	100	107	125	109	110	107	1039
Communications(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Computer	-	-	-	-	-	-	-	-	33	38	30	23	29	153
Electrical/electronics(45)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Electrical(45)	184	375	559	81	84	96	119	115	157	130	117	125	116	1140
Electronics(45)	42	65	107	12	13	6	21	10	18	24	24	16	31	175
Engineering mechanics	84	170	254	31	32	23	29	27	43	36	28	36	32	317
Engineering physics(46)	36	76	112	3	4	5	4	4	6	-	2	2	4	34
Engineering science(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Environmental health eng(47)	20	43	63	8	5	8	13	10	14	18	14	13	8	111
Fuel tech/petro eng(8)	-	8	8	3	4	-	3	10	6	2	2	2	2	34
Industrial	10	42	52	29	13	18	12	25	18	26	22	11	23	197
Materials science	-	-	-	4	9	12	25	32	28	31	36	36	43	256
Mechanical	88	208	296	45	48	54	59	79	79	76	80	85	87	692
Metallurgical(48)	64	144	208	28	40	38	32	38	31	42	28	29	34	340
Mining/mineral(49)	-	1	1	4	3	1	4	-	1	4	1	1	2	21
Naval arch/marine engin(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nuclear(46)	-	20	20	18	14	17	18	24	18	38	23	27	24	221
Ocean(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Operations research	-	-	-	-	-	11	14	20	29	16	21	26	21	158
Petroleum(50)	-	-	-	-	-	-	3	5	5	9	9	13	16	60
Polymer(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Systems(51)	-	-	-	-	-	-	-	-	21	15	22	24	16	98
Engineering, general	-	16	16	5	2	4	6	11	11	11	10	11	8	79
Engineering, other	26	65	91	25	40	33	19	40	28	21	28	27	31	292
TOTAL, NON-SCI/ENGINEERING(52)	1051	1838	2889	519	563	619	709	667	749	796	787	856	930	7195
TOTAL, ALL FIELDS	5905	10311	16216	2572	2690	2831	3174	3359	3536	3529	3448	3421	3587	32147

See footnotes at end of table.

Table 2. Citizenship status of science and engineering doctorates by subfield: 1960-89--continued

Field of study	Year of doctorate											
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1980-1989	Total 1960-1989
NON-U.S. CITIZENS, TEMPORARY RESIDENTS												
SOCIAL SCIENCES	508	574	591	596	669	683	718	684	729	821	6573	13737
Agricultural economics	54	64	73	59	71	48	60	45	48	54	576	1155
Anthropology	17	25	30	24	28	23	29	21	30	31	258	521
Area studies	2	5	1	1	6	3	9	2	-	1	30	68
Criminology(35)	3	-	-	4	9	7	-	2	7	1	33	33
Demography(2)	-	-	-	12	10	13	5	15	10	6	71	71
Econometrics	5	5	9	9	10	10	11	15	18	17	109	235
Economics	187	200	196	205	239	269	260	250	291	313	2410	5107
Geography	20	20	23	25	28	26	34	24	35	27	262	599
History of science(36)	-	4	3	-	1	4	6	2	-	3	23	43
International relations	21	16	23	16	26	13	21	21	20	27	204	487
Linguistics	39	47	45	45	50	46	60	67	55	56	510	954
Pol sci/government(37)	-	-	-	55	65	79	72	77	82	90	520	520
Political science(37)	47	52	60	-	-	-	-	-	-	-	159	414
Pol sci, public admin(37)	-	-	-	-	-	-	-	-	-	-	-	729
Public policy studies(2)	-	-	-	12	6	9	13	15	7	13	75	75
Sociology	63	69	54	64	62	60	68	54	68	92	654	1501
Statistics	9	18	20	23	21	34	27	25	21	41	239	441
Urban studies(38)	21	26	26	19	17	21	14	18	18	22	202	315
Social sciences, general	3	4	3	2	6	4	7	12	5	2	48	75
Social sciences, other	17	19	25	21	14	14	22	19	14	25	190	394
PSYCHOLOGY	71	80	65	79	88	81	81	85	84	103	817	1941
Clinical	12	13	11	9	6	9	13	21	16	11	121	294
Cognitive(2)	-	-	-	4	10	3	4	6	11	10	48	48
Comparative(39)	-	-	1	-	-	-	-	-	-	1	2	14
Counseling(40)	2	10	9	10	7	6	9	6	6	9	74	152
Developmental(41)	5	3	6	4	11	9	10	8	6	10	72	144
Educational	1	4	1	6	10	3	2	4	1	10	42	99
Exper, compar, physiol(39)	-	-	-	-	-	-	-	-	-	-	-	18
Experimental(39)	10	9	9	13	5	12	11	7	9	8	93	280
Indust/organizational(42)	2	2	3	2	4	2	2	3	6	6	32	92
Physiological(39)	2	3	3	7	3	5	1	6	5	1	36	110
Quantitative(2)	-	-	-	-	-	1	1	1	1	1	5	5
Personality	1	1	-	-	1	-	-	1	-	4	8	36
Psychometrics	1	3	-	-	-	2	-	-	1	-	7	41
School	1	1	1	-	2	1	1	3	2	2	14	24
Social	6	7	10	11	7	7	11	7	5	16	87	276
Psychology, general	7	10	3	8	8	11	9	8	11	6	81	159
Psychology, other	21	14	8	5	14	10	7	4	4	8	95	149
TOTAL, ENGINEERING	851	942	1030	1170	1269	1419	1372	1532	1722	1924	13231	23063
Aeronaut/astronautical(43)	34	35	38	49	58	51	60	59	48	83	515	956
Agricultural	39	42	23	33	40	34	22	31	25	39	328	565
Bioengineering/biomed(44)	5	6	7	14	15	14	8	19	24	28	140	205
Ceramic	7	8	5	8	8	5	9	11	12	13	86	138
Chemical	113	112	114	138	146	172	175	182	208	188	1548	2810
Civil	112	135	158	187	167	192	189	220	250	248	1858	3468
Communications(2)	-	-	-	7	2	12	8	14	8	10	61	61
Computer	25	24	39	36	21	25	37	32	57	65	361	514
Electrical/electronics(45)	-	-	-	170	247	273	275	264	354	422	2005	2005
Electrical(45)	117	134	184	28	1	1	-	-	-	-	465	2164
Electronics(45)	22	15	23	3	-	-	-	-	-	-	63	345
Engineering mechanics	35	30	37	32	40	47	42	56	52	51	422	993
Engineering physics(46)	2	7	1	2	1	4	1	-	3	5	26	172
Engineering science(2)	-	-	-	14	16	13	7	8	9	13	80	80
Environmental health eng(47)	9	17	15	9	20	15	10	13	16	12	136	310
Fuel tech/petro eng(8)	-	-	-	-	-	-	-	-	-	-	-	42
Industrial	28	20	28	38	42	48	52	56	66	90	468	717
Materials science	52	35	54	59	74	79	75	96	99	104	727	983
Mechanical	95	114	123	141	165	192	189	247	281	304	1851	2839
Metallurgical(48)	33	48	39	40	36	43	53	52	42	35	421	969
Mining/mineral(49)	3	1	-	9	7	8	12	10	9	17	76	98
Naval arch/marine engin(2)	-	-	-	4	2	6	2	2	5	6	27	27
Nuclear(46)	36	49	49	49	45	48	43	32	38	36	425	666
Ocean(2)	-	-	-	6	7	20	4	14	8	7	66	66
Operations research	13	31	24	17	16	25	16	15	17	35	209	367
Petroleum(50)	16	13	8	13	9	11	8	13	14	13	118	178
Polymer(2)	-	-	-	10	18	16	16	21	14	33	128	128
Systems(51)	22	27	23	23	23	29	14	22	18	7	208	306
Engineering, general	9	8	4	6	17	9	18	13	14	19	117	212
Engineering, other	24	31	34	25	26	27	27	30	31	41	296	679
TOTAL, NON-SCI/ENGINEERING(52)	934	978	1077	1099	1140	1201	1135	1160	1273	1257	11254	21338
TOTAL, ALL FIELDS	3644	3940	4204	4499	4832	5229	5276	5610	6192	6590	50016	98379

See footnotes at end of table.

Table 2. Citizenship status of science and engineering doctorates by subfield: 1960-89--continued

Field of study	Year of doctorate Total 1960-1964	Total 1965-1969	Total 1960-1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-1979
UNKNOWN CITIZENSHIP														
TOTAL, SCIENCE/ENGINEERING	552	1286	1838	182	280	320	337	852	366	347	436	495	463	4078
TOTAL, SCIENCES	499	1012	1511	162	248	288	294	676	313	273	362	426	403	3445
PHYSICAL SCIENCES	149	319	468	56	72	55	60	127	65	38	53	53	54	633
Physics/astronomy	85	180	265	32	45	22	27	55	22	22	24	18	31	298
Astronomy(1)	-	-	-	4	2	1	-	-	1	2	-	-	-	10
Astronomy/astrophysics(1) ..	2	5	7	-	-	-	-	-	-	-	-	-	-	-
Astrophysics(1)	-	-	-	-	-	-	-	2	-	-	1	-	1	4
Atomic/molecular	4	8	12	-	-	-	-	-	1	-	1	-	-	2
Electromagnetism(3)	2	3	5	-	-	-	-	-	-	-	-	-	-	-
Elementary particle	4	13	17	1	-	-	-	-	1	-	2	-	-	4
Fluids	-	-	-	-	-	-	-	1	-	-	-	-	-	1
Mechanics(4)	1	-	1	-	-	-	-	-	-	-	-	-	-	-
Nuclear(5)	7	6	13	-	1	-	-	-	-	-	-	-	-	1
Optics	1	-	1	-	1	-	-	-	-	-	-	-	-	1
Plasma	-	-	-	-	-	-	-	2	-	-	-	-	-	2
Solid state	5	4	9	1	3	1	1	1	1	1	-	-	-	9
Thermal(7)	1	2	3	-	-	-	-	-	-	-	-	-	-	-
Physics, general	51	121	172	19	27	18	22	45	16	19	18	18	29	231
Physics, other	7	18	25	7	11	2	4	4	2	-	2	-	1	33
Chemistry	64	139	203	24	27	33	33	72	43	16	29	35	23	335
Agricultural/food	1	3	4	1	-	-	-	-	1	1	-	1	-	4
Analytical	2	2	4	-	-	-	-	-	-	-	-	2	-	2
Inorganic	-	4	4	2	1	-	1	-	-	-	1	1	-	6
Nuclear	4	1	5	-	-	-	-	-	-	-	-	-	-	-
Organic	2	9	11	6	1	3	2	1	2	2	-	3	-	20
Pharmaceutical	-	7	7	-	1	-	-	3	1	-	1	3	1	10
Physical	10	19	29	-	3	-	3	2	1	1	5	1	2	18
Polymer	-	-	-	-	-	-	-	1	-	-	-	-	-	1
Theoretical	-	3	3	-	-	-	-	-	-	-	-	-	-	-
Chemistry, general	44	90	134	14	20	28	27	65	37	11	21	24	19	266
Chemistry, other	1	1	2	1	1	2	-	-	1	1	1	-	1	8
EARTH, ATMOS. & MARINE SCI	18	42	60	5	1	9	7	24	9	9	11	15	9	99
Applied geo, geo eng(8)	-	8	8	-	-	-	-	-	-	-	-	-	-	-
Applied geology(8)	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Atmos/meteorol sci, gen(2) .	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Atmos/meteorol sci, other ..	-	-	-	-	-	-	-	-	-	1	3	3	-	7
Atmospheric dynamics	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Atmospheric phys/chem	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Environmental sciences(9) ..	-	-	-	-	-	1	-	-	-	2	2	3	2	10
Geochemistry(10)	-	-	-	-	-	1	1	1	1	-	1	-	-	5
Geology(11)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Structural geology(11)	2	-	2	1	-	-	-	-	-	-	-	-	-	1
Geophysics/seismology(12) ..	-	-	-	-	-	-	-	-	-	-	1	2	1	4
Geophysics(12)	1	3	4	1	-	-	2	2	1	1	-	-	-	7
Hydrology/water res(13)	-	1	1	-	-	-	-	1	1	-	-	-	-	2
Marine sciences(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Meteorology(15)	2	2	4	-	-	1	-	-	1	-	-	-	-	2
Mineral, petrol, geochem(10)	1	1	2	-	-	-	-	-	-	-	-	-	-	-
Minerology, petrology(10) ..	-	-	-	-	-	-	-	1	2	-	1	-	-	4
Oceanography	-	4	4	-	-	1	1	1	1	2	1	-	1	8
Paleontology	2	1	3	-	-	-	-	1	-	-	-	1	1	3
Stratigraphy, sediment	-	-	-	1	-	-	-	-	-	-	-	-	-	1
Geological sciences, gen(16)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Geological sciences, oth(16)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Earth sciences, general(16).	8	20	28	2	1	2	3	17	2	2	1	4	3	37
Earth sciences, other(16) ..	2	2	4	-	-	3	-	-	-	1	1	2	-	7
Physical sciences, other(2).	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MATHEMATICS	36	87	123	15	12	17	27	40	27	17	22	17	17	211
Algebra	-	1	1	-	-	-	-	-	-	-	-	-	-	-
Analysis/funct analysis(17).	3	1	4	1	-	-	2	-	-	-	1	1	-	5
Applied mathematics	7	9	16	6	1	3	4	4	4	2	1	2	3	30
Computing theory	-	4	4	-	-	-	7	6	3	1	-	-	-	17
Geometry	-	1	1	-	-	-	-	-	-	-	-	-	-	-
Logic	-	2	2	-	-	1	-	-	-	-	-	-	-	1
Operations research	-	-	-	-	-	-	-	2	-	-	1	1	-	4
Probability/math stat (18) .	4	8	12	2	-	2	1	2	2	3	2	-	1	15
Topology	1	-	1	-	-	-	-	-	-	1	-	-	-	1
Mathematics, general	21	56	77	5	10	11	13	26	18	10	16	12	13	134
Mathematics, other	-	5	5	1	1	-	-	-	-	-	1	1	-	4
COMPUTER/INFORMATION SCIENCES ..	-	-	-	-	-	-	-	-	-	-	3	5	3	11
Computer sciences	-	-	-	-	-	-	-	-	-	-	3	5	3	11
Information sci/systems(2) .	-	-	-	-	-	-	-	-	-	-	-	-	-	-

See footnotes at end of table.

Table 2. Citizenship status of science and engineering doctorates by subfield: 1960-89--continued

Field of study	Year of doctorate 1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1980-1989	Total 1960-1989
UNKNOWN CITIZENSHIP												
TOTAL, SCIENCE/ENGINEERING	451	597	744	692	737	808	1254	1347	1482	1919	10031	15947
TOTAL, SCIENCES	377	482	593	563	606	655	976	1080	1162	1521	8015	12971
PHYSICAL SCIENCES	60	82	78	79	91	118	185	187	218	250	1348	2449
Physics/astronomy	28	38	31	27	39	44	88	83	95	116	589	1152
Astronomy(1)	1	1	-	-	2	1	-	3	4	4	16	26
Astronomy/astrophysics(1) ..	-	-	-	-	-	-	-	-	-	-	-	7
Astrophysics(1)	-	-	-	-	-	1	1	1	3	1	7	11
Atomic/molecular	-	1	-	-	-	-	-	-	1	-	2	16
Electromagnetism(3)	-	-	-	-	-	-	-	-	-	-	-	5
Elementary particle	-	-	-	-	-	1	1	1	-	-	3	24
Fluids	1	-	-	-	-	-	-	-	-	-	1	2
Mechanics(4)	-	-	-	-	-	-	-	-	-	-	-	1
Nuclear(5)	-	-	-	1	-	-	-	-	1	-	2	16
Optics	-	2	-	-	1	2	4	-	-	7	16	18
Plasma	-	-	-	1	1	-	1	1	-	1	5	7
Solid state	1	1	-	-	-	-	1	2	-	1	6	24
Thermal(7)	-	-	-	-	-	-	-	-	-	-	-	3
Physics, general	25	32	28	21	32	35	71	67	75	88	474	877
Physics, other	-	1	3	4	3	4	9	8	11	14	57	115
Chemistry	32	44	47	52	52	74	97	104	123	134	759	1297
Agricultural/food	-	-	-	-	-	-	-	-	-	-	-	8
Analytical	-	-	-	1	1	1	-	-	2	-	5	11
Inorganic	-	2	1	-	-	2	2	4	5	1	17	27
Nuclear	-	-	-	-	-	-	-	-	-	-	-	5
Organic	2	1	2	1	2	5	4	7	8	2	34	65
Pharmaceutical	2	1	2	4	1	3	-	3	3	1	20	37
Physical	-	1	1	1	2	2	1	-	8	-	16	63
Polymer	-	-	-	2	-	-	-	-	-	1	3	4
Theoretical	-	-	-	-	-	-	-	-	-	-	-	3
Chemistry, general	28	38	39	40	42	57	83	85	92	125	629	1029
Chemistry, other	-	1	2	3	4	4	7	5	5	4	35	45
EARTH, ATMOS, & MARINE SCI	10	10	19	18	9	24	37	53	49	60	289	448
Applied geo, geo eng(8)	-	-	-	-	-	-	-	-	-	-	-	8
Applied geology(8)	-	1	-	-	-	-	-	-	-	-	1	2
Atmos/meteorol sci, gen(2) .	-	-	-	-	-	-	-	2	1	-	3	3
Atmos/meteorol sci, other ..	-	-	-	3	1	1	-	-	1	-	6	13
Atmospheric dynamics	-	-	-	-	-	-	1	1	-	-	2	2
Atmospheric phys/chem	-	-	-	-	-	-	2	6	-	-	8	8
Environmental sciences(9) ..	-	-	2	-	1	1	1	2	4	3	14	24
Geochemistry(10)	1	-	1	-	-	-	1	1	2	5	11	16
Geology(11)	-	-	-	7	2	3	10	14	15	22	73	73
Structural geology(11)	1	-	-	-	-	-	-	-	-	-	1	4
Geophysics/seismology(12) ..	3	1	2	3	3	5	10	3	4	8	42	46
Geophysics(12)	-	-	-	-	-	-	-	-	-	-	-	11
Hydrology/water res(13)	-	1	2	-	-	2	3	1	1	2	12	15
Marine sciences(2)	-	-	-	-	-	-	-	1	-	-	1	1
Meteorology(15)	-	-	-	-	-	-	-	-	2	4	6	12
Mineral, petrol, geochem(10)	-	-	-	-	-	-	-	-	-	-	-	2
Minerology, petrology(10) ..	-	-	-	-	-	-	-	-	1	-	1	5
Oceanography	2	1	5	-	2	3	4	11	10	10	48	60
Paleontology	-	-	-	-	-	2	-	2	-	-	4	10
Stratigraphy, sediment	-	-	1	-	-	-	-	-	-	-	1	2
Geological sciences, gen(16)	-	-	-	2	-	2	3	1	2	1	11	11
Geological sciences, oth(16)	-	-	-	3	-	-	-	-	-	1	4	4
Earth sciences, general(16).	3	6	5	-	-	-	-	-	-	-	14	79
Earth sciences, other(16) ..	-	-	1	-	-	-	-	-	-	-	1	12
Physical sciences, other(2).	-	-	-	-	-	5	2	8	6	4	25	25
MATHEMATICS	23	17	29	35	23	32	55	42	58	90	404	738
Algebra	-	-	-	-	1	-	-	1	-	-	2	3
Analysis/funct analysis(17).	-	-	1	-	-	-	-	1	1	-	3	12
Applied mathematics	2	1	-	3	4	6	6	1	4	4	31	77
Computing theory	-	-	-	-	-	-	-	-	1	-	1	22
Geometry	-	-	-	-	-	-	-	-	-	-	-	1
Logic	-	-	-	-	-	-	-	-	-	-	-	3
Operations research	1	2	-	-	-	-	1	-	-	-	4	8
Probability/math stat (18) .	1	1	3	3	2	1	7	6	6	9	39	66
Topology	-	-	-	-	-	-	-	-	1	-	1	3
Mathematics, general	18	13	24	29	16	24	39	31	45	77	316	527
Mathematics, other	1	-	1	-	-	1	2	2	-	-	7	16
COMPUTER/INFORMATION SCIENCES ..	6	4	6	7	11	8	27	32	13	39	153	164
Computer sciences	6	4	6	7	10	8	23	27	13	36	140	151
Information sci/systems(2) .	-	-	-	-	1	-	4	5	-	3	13	13

See footnotes at end of table.

Table 2. Citizenship status of science and engineering doctorates by subfield: 1960-89--continued

Field of study	Total 1960-1964	Total 1965-1969	Total 1960-1969	Year of doctorate 1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-1979
UNKNOWN CITIZENSHIP														
AGRICULTURAL & BIOLOGICAL SCI ..	95	192	287	28	81	83	80	187	85	108	106	103	104	965
Agricultural sciences	9	35	44	3	3	4	4	23	5	8	11	13	17	91
Agronomy	1	9	10	-	-	1	1	6	-	3	2	5	3	21
Animal breeding/genetics(20)	2	8	10	2	1	-	-	-	-	-	1	-	1	5
Animal nutrition(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Animal sci/nutrition(21) ...	-	-	-	-	-	-	-	7	1	1	-	3	2	14
Dairy science(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Poultry science(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Animal sciences, other(21) .	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fish/wildlife(22)	1	-	1	-	-	-	-	-	-	1	-	-	-	1
Fisheries science(22)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wildlife management(22)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wildlife/range mgmt(22)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Food sciences(23)	-	-	-	-	-	-	-	2	1	-	2	2	2	9
Food sciences, other(23) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Forestry science(24)	-	2	2	1	-	-	-	2	1	-	2	-	1	7
Forest engineering(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Forest management(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Renewable natrl resrces(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Forestry&relatd sci, oth(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Horticulture science	2	2	4	-	-	-	-	-	1	1	1	1	2	6
Plant breeding/genetics(25).	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Plant pathology(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phytopathology(25)	1	4	5	-	1	-	2	4	-	-	-	-	4	11
Plant sciences, other(25) ..	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Soil sciences(26)	-	4	4	-	-	1	1	2	1	1	2	-	-	8
Soil sciences, other(26) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Agriculture, general	-	2	2	-	1	-	-	-	-	1	-	-	1	3
Agriculture, other	2	4	6	-	-	2	-	-	-	-	1	2	1	6
Biological sciences	86	157	243	25	78	79	76	164	80	100	95	90	87	874
Anatomy	1	1	2	3	4	4	1	11	3	5	8	3	1	43
Biochemistry	14	32	46	5	12	16	17	21	10	17	19	12	12	141
Biometrics/biostat	-	-	-	-	1	1	-	1	1	-	-	-	-	4
Biophysics	1	8	9	-	5	7	5	8	14	10	9	7	6	71
Botany, other(27)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Botany(27)	12	12	24	-	-	3	1	11	-	2	1	6	1	25
Cell biology(28)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cytology(28)	1	-	1	-	1	-	2	-	-	3	2	1	-	9
Ecology	-	-	-	-	-	2	-	2	-	-	-	-	-	4
Embryology	1	2	3	-	-	-	-	-	-	-	-	-	-	-
Endocrinology(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Entomology	4	9	13	-	1	1	2	8	1	1	1	4	2	21
Human/animal genetics(29) ..	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Genetics(29)	4	6	10	2	-	4	-	5	4	5	4	2	2	28
Human/animal pathology(30) .	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Plant pathology(30)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pathology(30)	1	-	1	-	5	5	11	9	7	2	8	-	2	49
Human/animal pharmacol	5	8	13	2	4	3	2	18	5	8	2	6	6	56
Human/animal physiol(31) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Animal physiology(31)	6	12	18	5	4	2	1	8	2	2	3	12	4	43
Animal/plant physiol(31) ...	4	-	4	-	-	-	-	-	-	-	-	-	-	-
Plant physiology(31)	-	1	1	-	-	-	1	2	1	-	-	-	1	5
Immunology	-	-	-	-	-	-	-	1	-	2	5	2	-	10
Microbiology(32)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bacteriology(32)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Microbiology/bacteriol(32) .	9	8	17	1	9	7	4	17	4	16	7	8	13	86
Molecular biology	-	1	1	-	-	-	1	1	-	1	-	-	1	4
Neurosciences	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nutritional sciences(33) ...	-	-	-	-	-	-	-	-	-	1	-	3	3	7
Parasitology	-	-	-	-	-	-	-	1	-	1	-	-	-	2
Toxicology(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zoology, other(34)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zoology(34)	17	11	28	-	2	1	5	13	5	1	5	6	7	45
Biological sci, general	3	39	42	4	15	17	16	20	17	14	13	14	18	148
Biological sci, other	3	7	10	3	15	6	7	7	6	9	8	4	8	73

See footnotes at end of table.

Table 2. Citizenship status of science and engineering doctorates by subfield: 1960-89--continued

	Year of doctorate											
Field of study	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1980-1989	Total 1960-1989
UNKNOWN CITIZENSHIP												
AGRICULTURAL & BIOLOGICAL SCI	88	123	137	118	143	143	226	257	293	312	1840	3092
Agricultural sciences	11	28	21	23	23	30	51	55	60	82	384	519
Agronomy	1	4	3	2	2	7	14	9	7	7	56	87
Animal breeding/genetics(20)	-	-	-	-	-	1	-	-	-	1	2	17
Animal nutrition(21)	-	-	-	2	1	-	-	2	1	-	6	6
Animal sci/nutrition(21)	3	6	5	-	-	-	-	-	-	-	14	28
Dairy science(21)	-	-	-	-	-	-	-	-	2	3	5	5
Poultry science(21)	-	-	-	-	-	-	-	-	-	1	1	1
Animal sciences, other(21)	-	-	-	2	5	3	7	4	8	7	36	36
Fish/wildlife(22)	1	2	-	-	-	-	-	-	-	-	3	5
Fisheries science(22)	-	-	-	-	-	1	3	3	5	2	14	14
Wildlife management(22)	-	-	-	1	-	1	1	1	-	-	4	4
Wildlife/range mgmt(22)	-	-	-	-	-	-	-	-	-	3	3	3
Food sciences(23)	-	2	2	8	4	4	5	8	1	-	34	43
Food sciences, other(23)	-	-	-	-	-	-	-	-	6	13	19	19
Forestry science(24)	1	4	5	2	1	3	4	7	-	-	27	36
Forest engineering(24)	-	-	-	-	-	-	-	-	1	-	1	1
Forest management(24)	-	-	-	-	-	-	-	-	1	-	1	1
Renewable natrl resrces(24)	-	-	-	-	-	-	-	-	-	1	1	1
Forestry&relatd sci, oth(24)	-	-	-	-	-	-	-	-	12	12	24	24
Horticulture science	1	5	1	3	2	3	5	5	4	6	35	45
Plant breeding/genetics(25)	-	-	-	-	2	-	-	1	2	5	10	10
Plant pathology(25)	-	-	-	-	2	1	3	5	-	7	18	18
Phytopathology(25)	2	1	2	-	-	-	-	-	-	-	5	21
Plant sciences, other(25)	-	-	-	1	-	1	-	1	3	-	6	6
Soil sciences(26)	-	1	1	-	-	2	2	5	-	-	11	23
Soil sciences, other(26)	-	-	-	-	-	-	-	-	5	5	10	10
Agriculture, general	-	-	-	-	-	2	-	2	2	1	7	12
Agriculture, other	2	3	2	2	4	1	7	2	-	8	31	43
Biological sciences	77	95	116	95	120	113	175	202	233	230	1456	2573
Anatomy	1	4	7	5	3	3	5	3	8	7	46	91
Biochemistry	12	16	17	23	19	12	24	29	33	26	211	398
Biometrics/biostat	-	1	2	3	-	1	-	2	3	1	13	17
Biophysics	6	1	2	3	5	2	3	7	8	5	42	122
Botany, other(27)	-	-	-	3	4	3	7	7	10	8	42	42
Botany(27)	4	7	2	-	-	-	-	-	-	-	13	62
Cell biology(28)	-	-	-	3	3	2	7	2	6	3	26	26
Cytology(28)	-	1	3	-	-	-	-	-	-	-	4	14
Ecology	1	3	-	2	-	1	3	5	4	3	22	26
Embryology	-	-	-	-	-	-	-	-	-	-	-	3
Endocrinology(2)	-	-	-	-	-	-	1	1	-	-	2	2
Entomology	3	1	2	3	4	5	14	10	7	4	53	87
Human/animal genetics(29)	-	-	-	2	5	2	2	7	9	15	42	42
Genetics(29)	3	2	1	-	-	-	-	-	-	-	6	44
Human/animal pathology(30)	-	-	-	2	5	2	4	6	5	3	27	27
Plant pathology(30)	-	-	-	-	1	-	1	-	-	-	2	2
Pathology(30)	3	5	2	-	-	-	-	-	-	-	10	60
Human/animal pharmacol	3	5	11	7	4	8	15	10	15	17	95	164
Human/animal physiol(31)	-	-	-	4	3	13	10	14	8	13	65	65
Animal physiology(31)	1	2	2	-	-	-	-	-	-	-	5	66
Animal/plant physiol(31)	-	-	-	-	-	-	-	-	-	-	-	4
Plant physiology(31)	2	1	-	-	-	-	-	1	-	-	4	10
Immunology	-	1	4	-	2	1	5	3	4	5	25	35
Microbiology(32)	-	-	-	5	11	10	12	15	14	24	91	91
Bacteriology(32)	-	-	-	1	1	-	-	2	-	-	4	4
Microbiology/bacteriol(32)	11	7	10	-	-	-	-	-	-	-	28	131
Molecular biology	-	4	8	1	3	3	2	6	4	6	37	42
Neurosciences	-	-	1	-	3	3	1	4	6	4	22	22
Nutritional sciences(33)	2	4	10	2	6	1	5	9	7	11	57	64
Parasitology	-	1	-	-	-	-	1	1	-	-	3	5
Toxicology(2)	-	-	-	-	1	3	-	1	8	8	21	21
Zoology, other(34)	-	-	-	3	1	10	10	8	6	8	46	46
Zoology(34)	4	6	5	-	-	-	-	-	-	-	15	88
Biological sci, general	18	16	22	19	28	22	33	38	47	44	287	477
Biological sci, other	3	7	5	4	8	6	10	11	21	15	90	173

See footnotes at end of table.

Table 2. Citizenship status of science and engineering doctorates by subfield: 1960-89--continued

	Year of doctorate															
Field of study	Total 1960-1964	Total 1965-1969	Total 1960-1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-1979
UNKNOWN CITIZENSHIP														
SOCIAL SCIENCES	161	273	434	42	50	92	77	175	84	72	71	97	93	853
Agricultural economics	-	-	-	-	1	2	1	2	1	3	2	4	6	22
Anthropology	10	14	24	7	4	11	11	17	10	11	10	13	10	104
Area studies	-	2	2	-	1	-	-	1	1	2	1	1	1	8
Criminology(35)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Demography(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Econometrics	-	2	2	-	-	-	-	-	-	-	-	1	1	2
Economics	61	93	154	11	9	19	21	32	23	15	18	31	19	198
Geography	5	4	9	3	-	3	2	13	4	2	3	2	4	36
History of science(36)	-	-	-	-	-	-	-	-	-	1	-	-	1	2
International relations	11	5	16	1	3	4	4	2	1	1	-	1	-	17
Linguistics	4	13	17	1	5	6	2	9	2	-	6	8	9	48
Pol sci/government(37)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Political science(37)	-	-	-	-	-	-	-	-	-	12	13	15	26	66
Pol sci, public admin(37)	47	82	129	14	16	25	16	41	16	1	-	-	-	129
Public policy studies(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sociology	21	42	63	3	7	12	11	36	13	17	11	12	8	130
Statistics	-	5	5	-	2	2	4	4	4	1	1	2	-	20
Urban studies(38)	-	-	-	-	-	4	-	4	1	2	2	2	2	17
Social sciences, general	-	2	2	-	-	-	-	3	3	2	1	1	1	11
Social sciences, other	2	9	11	2	2	4	5	11	5	2	3	4	5	43
PSYCHOLOGY	40	99	139	16	32	32	43	123	43	29	96	136	123	673
Clinical	4	6	10	2	5	2	4	15	5	3	9	75	69	189
Cognitive(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Comparative(39)	1	-	1	-	-	-	-	-	-	-	-	-	-	-
Counseling(40)	3	-	3	1	2	1	1	1	1	2	2	4	2	17
Developmental(41)	4	4	8	-	-	-	-	8	-	-	-	2	-	10
Educational	-	3	3	-	-	2	2	7	3	-	1	2	4	21
Experimental(39)	8	4	12	2	-	2	1	1	2	2	-	-	1	11
Indust/organizational(42)	1	1	2	-	-	-	1	-	-	1	-	1	-	3
Physiological(39)	1	3	4	-	-	2	-	-	-	-	-	-	1	3
Personality	3	1	4	-	-	2	1	-	-	-	-	-	1	4
Psychometrics	3	1	4	-	-	-	-	-	-	-	-	-	1	1
School	-	1	1	-	1	-	2	-	-	-	5	1	4	13
Social	5	9	14	-	2	1	2	-	-	-	-	-	2	7
Psychology, general	6	49	55	9	7	10	20	88	28	19	49	46	34	310
Psychology, other	1	17	18	2	15	10	9	3	4	2	30	5	4	84
TOTAL, ENGINEERING	53	274	327	20	32	32	43	176	53	74	74	69	60	633
Aeronaut/astronautical(43)	1	9	10	-	-	2	2	2	1	2	2	2	1	14
Agricultural	-	-	-	-	-	1	-	4	-	1	1	-	-	7
Bioengineering/biomed(44)	-	-	-	-	1	-	-	-	1	2	1	2	-	7
Ceramic	-	-	-	-	-	-	-	3	-	-	1	-	2	6
Chemical	8	22	30	1	4	3	8	9	4	11	4	5	4	53
Civil	14	37	51	1	3	1	4	37	9	15	3	8	9	90
Communications(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Computer	-	-	-	-	-	-	-	-	-	3	-	-	1	4
Electrical/electronics(45)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Electrical(45)	12	65	77	4	9	7	10	53	9	15	21	19	13	160
Electronics(45)	2	2	4	-	2	-	-	-	-	1	-	-	-	3
Engineering mechanics	-	7	7	1	1	1	1	3	-	-	1	4	2	14
Engineering physics(46)	1	5	6	-	-	-	1	-	-	-	-	-	-	1
Engineering science(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Environmental health eng(47)	-	1	1	1	-	-	-	1	-	1	-	2	-	5
Fuel tech/petro eng(8)	-	1	1	1	-	-	-	-	-	-	2	-	-	3
Industrial	1	8	9	-	-	-	1	6	2	1	3	-	5	18
Materials science	-	-	-	-	-	-	2	7	8	7	6	1	2	33
Mechanical	6	43	49	1	-	4	3	11	6	2	12	4	3	46
Metallurgical(48)	5	35	40	3	3	-	3	5	-	1	1	2	1	19
Mining/mineral(49)	-	-	-	-	1	-	-	-	1	-	-	-	-	2
Naval arch/marine engin(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nuclear(46)	-	8	8	1	1	2	-	3	2	3	5	2	2	21
Ocean(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Operations research	-	-	-	-	-	1	2	1	-	-	3	1	1	9
Petroleum(50)	-	-	-	-	-	-	1	6	2	-	-	-	2	11
Polymer(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Systems(51)	-	-	-	-	-	-	-	-	-	-	2	1	3	6
Engineering, general	2	17	19	5	3	5	3	15	6	4	1	9	5	56
Engineering, other	1	14	15	1	4	5	2	10	2	5	5	7	4	45
TOTAL, NON-SCI/ENGINEERING(52)	294	877	1171	253	232	318	333	667	254	307	345	324	405	3438
TOTAL, ALL FIELDS	846	2163	3009	435	512	638	670	1519	620	654	781	819	868	7516

See footnotes at end of table.

Table 2. Citizenship status of science and engineering doctorates by subfield: 1960-89--continued

	Year of doctorate											
Field of study	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1980-1989	Total 1960-1989
UNKNOWN CITIZENSHIP												
SOCIAL SCIENCES	72	126	153	146	146	158	234	231	277	316	1859	3146
Agricultural economics	3	1	3	10	5	12	14	12	20	21	101	123
Anthropology	7	14	8	14	18	14	23	27	17	29	171	299
Area studies	1	2	1	4	2	2	9	3	3	5	32	42
Criminology(35)	-	1	1	-	-	-	-	4	4	4	14	14
Demography(2)	-	-	-	1	1	-	-	-	-	1	3	3
Econometrics	-	-	-	-	-	-	-	-	-	-	-	4
Economics	18	32	49	35	33	34	57	64	59	89	470	822
Geography	5	4	8	3	3	8	8	5	4	9	57	102
History of science(36)	-	-	1	1	2	1	1	-	-	1	7	9
International relations	2	7	5	1	10	5	4	3	12	6	55	88
Linguistics	5	9	15	8	4	8	14	15	16	21	115	180
Pol sci/government(37)	-	-	-	20	25	35	46	41	57	54	278	278
Political science(37)	16	20	27	-	-	-	-	-	-	-	63	129
Pol sci, public admin(37)	-	-	-	-	-	-	-	-	-	-	-	258
Public policy studies(2)	-	-	-	1	-	1	1	4	5	2	14	14
Sociology	9	14	19	25	19	21	28	34	39	37	245	438
Statistics	-	1	2	5	3	5	8	3	3	8	38	63
Urban studies(38)	-	12	3	10	9	3	6	11	15	8	77	94
Social sciences, general	3	2	4	1	3	4	7	-	8	5	37	50
Social sciences, other	3	7	7	7	9	5	8	5	15	16	82	136
PSYCHOLOGY	118	120	171	160	183	172	212	278	254	454	2122	2934
Clinical	47	24	39	54	57	60	67	106	87	202	743	942
Cognitive(2)	-	-	-	-	-	-	-	2	1	-	3	3
Comparative(39)	-	-	-	-	-	-	-	-	-	1	1	2
Counseling(40)	3	1	4	3	6	6	12	10	10	19	74	94
Developmental(41)	-	-	-	1	2	1	1	3	2	1	11	29
Educational	5	2	6	4	12	4	9	5	6	14	67	91
Experimental(39)	1	2	5	5	-	-	-	2	-	2	17	40
Indust/organizational(42)	-	-	-	-	1	1	1	1	2	1	7	12
Physiological(39)	-	1	-	2	-	-	-	-	-	-	3	10
Personality	-	-	-	1	1	-	-	-	1	-	3	11
Psychometrics	-	-	-	-	-	-	-	-	-	-	-	5
School	1	2	5	3	4	1	7	2	8	7	40	54
Social	-	3	4	2	3	1	1	-	1	-	15	36
Psychology, general	38	61	45	63	79	75	99	137	122	185	904	1269
Psychology, other	23	24	63	22	18	23	15	10	14	22	234	336
TOTAL, ENGINEERING	74	115	151	129	131	153	278	267	320	398	2016	2976
Aeronaut/astronautical(43)	3	6	4	4	4	3	13	11	21	12	81	105
Agricultural	1	-	1	-	2	-	2	2	-	5	13	20
Bioengineering/biomed(44)	2	1	1	1	3	3	7	2	6	3	29	36
Ceramic	-	-	1	-	-	1	1	1	2	2	8	14
Chemical	8	13	19	11	16	11	31	17	37	30	193	276
Civil	6	13	13	13	20	14	31	39	27	31	207	348
Communications(2)	-	-	-	1	-	1	3	-	1	-	6	6
Computer	-	1	1	2	2	6	3	-	4	7	26	30
Electrical/electronics(45)	-	-	-	25	30	45	70	76	83	98	427	427
Electrical(45)	17	24	34	4	1	-	-	-	-	-	80	317
Electronics(45)	-	1	-	-	-	-	-	-	-	-	1	8
Engineering mechanics	4	3	1	3	2	5	4	5	6	12	45	66
Engineering physics(46)	2	-	-	-	-	-	-	-	-	-	2	9
Engineering science(2)	-	-	-	-	-	-	2	3	5	2	12	12
Environmental health eng(47)	-	1	2	1	-	-	7	2	5	4	22	28
Fuel tech/petro eng(8)	-	-	-	-	-	-	-	-	-	-	-	4
Industrial	5	4	2	3	6	6	2	7	10	12	57	84
Materials science	4	5	17	14	1	7	11	12	15	25	111	144
Mechanical	7	11	13	11	18	18	34	41	49	67	269	364
Metallurgical(48)	2	3	8	2	2	3	4	6	5	7	42	101
Mining/mineral(49)	-	1	1	-	-	1	1	2	-	1	7	9
Naval arch/marine engin(2)	-	-	-	-	-	-	-	1	2	1	4	4
Nuclear(46)	5	6	6	8	6	5	7	11	6	14	74	103
Ocean(2)	-	-	-	2	-	-	1	2	5	6	16	16
Operations research	-	-	2	2	1	1	4	2	1	1	14	23
Petroleum(50)	-	2	4	5	2	2	2	1	3	4	25	36
Polymer(2)	-	-	-	-	1	-	1	-	1	-	3	3
Systems(51)	-	2	2	3	-	3	1	3	1	4	19	25
Engineering, general	7	13	11	10	5	13	14	10	9	24	116	191
Engineering, other	1	5	8	4	9	5	22	11	16	26	107	167
TOTAL, NON-SCI/ENGINEERING(52)	413	478	544	457	517	568	853	842	915	1033	6620	11229
TOTAL, ALL FIELDS	864	1075	1288	1149	1254	1376	2107	2189	2397	2952	16651	27176

See footnotes at end of table.

SOURCE: Survey of Earned Doctorates

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FOOTNOTES

NOTE: A hyphen (-) in a data column signifies that the subfield was not identified separately in the questionnaire for that year (e.g., the subfield "Polymer chemistry" was introduced in 1973), or that this subfield was included in the questionnaire for that year but no doctorates were reported.

(1) "Astronomy/astrophysics" were combined until 1969 when separate subfields were introduced.

(2) This subfield was introduced in 1983.

(3) This subfield was originally called "Electricity and magnetism." In 1966 the name was changed to "Electromagnetism." In 1980 this subfield was deleted from the taxonomy.

(4) "Thermal physics" was originally shown as one subfield, "Mechanics and heat." In 1960 this subfield was separated into "Mechanics" and "Heat (Thermal)." The latter was subsequently changed to "Thermal phenomena" in 1963 and then to "Thermal physics" in 1967. "Mechanics" was deleted from the taxonomy in 1977.

(5) This subfield was originally named "Nuclear structure." It was changed to "Nuclear" in 1983.

(6) This subfield was deleted in 1962, but some degrees were reported for 1962 and 1963 because outdated forms were used by some institutions.

(7) This subfield was added in 1960 under the original name of "Heat (Thermal)." It was deleted in 1982. See footnote 4 for more information.

(8) In 1960 "Geophysical engineering" and Geological engineering" were merged into "Geo-engineering." "Geo-engineering" became "Applied geology, geological engineering, economic geology, and petroleum engineering" in 1962, and was split into "Applied geology, geological engineering, and economic geology" and "Fuel technology and petroleum engineering" in 1969. "Fuel technology and petroleum engineering" was discontinued in this major group, and in 1983 "Applied geology, geological engineering, and economic geology" was replaced by "Applied geology" (also see footnote 50).

(9) "Environmental sciences, general" and "Environmental sciences, other" were deleted in 1983, and "Environmental sciences" was introduced.

(10) "Mineralogy, petrology, and geochemistry" was split into "Geochemistry" and "Mineralogy, petrology" in 1969.

(11) "Structural geology" was deleted in 1983, and "Geology" was introduced.

(12) "Geophysics" was replaced by "Geophysics, solid earth" in 1976. It was changed to "Geophysics and seismology" in 1983.

(13) This subfield was originally listed as "Hydrology." "Water resources" was added to the title in 1977.

(14) This subfield was introduced in 1977 and deleted in 1983.

(15) This subfield was deleted in 1976 and restored in 1983.

(16) "Earth science, general" and "Earth science, other" were deleted in 1983, and "Geological sciences, general" and "Geological sciences, other" were introduced.

(17) This subfield was specified as "Analysis" through 1967. "Functional analysis" was added in 1968.

(18) "Math statistics" was removed from the name of this subfield in 1969, but was restored in 1972.

(19) This subfield was introduced in 1988.

(20) This subfield was previously called "Animal husbandry." It was changed in 1983.

(21) The "Animal sciences" subfield was introduced in 1972. The name was changed to "Animal science and animal nutrition" in 1977. The field was separated into "Animal nutrition" and "Animal sciences, other" in 1983. In 1988 "Dairy science" and "Poultry science" were introduced.

(22) "Fish and wildlife" was split into two separate subfields in 1983. In 1988 "Wildlife management" was discontinued, and "Wildlife/range management" was introduced.

(23) This subfield was introduced as "Food science and technology" in 1969. The name was changed to "Food sciences" in 1983. In 1988 the field was separated into "Food distribution," "Food engineering," and "Food sciences, other."

(24) In 1988 "Forestry science" was separated into "Forestry biology," "Forest engineering," "Forest management," "Wood science," "Renewable natural resources," and "Forestry and related sciences, other."

(25) "Phytopathology" was discontinued in 1983 and subfields "Plant breeding and genetics," "Plant pathology," and "Plant sciences, other" were introduced. In 1988 "Plant protection-pest management" was introduced.

(26) This subfield was changed from "Soils and soil science" to "Soil sciences" in 1983. In 1988 "Soil sciences" was separated into "Soil chemistry/microbiology" and "Soil sciences, other."

(27) The subfield "Botany" was discontinued in 1983, and "Botany, other" was introduced.

(28) "Cytology" was introduced in 1962 and discontinued in 1983. "Cell biology" was introduced in 1983.

(29) "Genetics" was split into "Plant genetics" and "Human and animal genetics" in 1983.

(30) "Pathology" was split into "Plant pathology" and "Human and animal pathology" in 1983.

(31) In 1962 "Animal and plant physiology" was separated into "Animal physiology" and "Plant physiology." In 1983 "Animal physiology" was replaced by "Human and animal physiology."

(32) This subfield was originally called "Microbiology." "Bacteriology" was added in 1970. In 1983, they were split into two separate subfields.

(33) The subfield "Nutrition" was discontinued in 1963. "Nutrition and dietetics" was introduced in 1976 and was replaced by "Nutritional sciences" in 1983.

(34) The subfield "Zoology" was discontinued in 1983, and "Zoology, other" was introduced.

(35) This subfield was introduced in 1980 as "Criminology and criminal justice." The name was changed to "Criminology" in 1983.

(36) The subfield "History and philosophy of science" was introduced in 1971. The name was changed to "History of science" in 1983.

(37) "Political science, public administration" was split into two separate subfields in 1976. "Public administration" was not included in science or engineering fields after 1976. In 1983, "Political science and government" replaced "Political science."

(38) This subfield was changed from "Urban and regional planning" to "Urban studies" in 1983.

(39) "Experimental, comparative, and physiological psychology" was split into three separate subfields in 1962.

(40) This subfield was changed from "Counseling and guidance" to "Counseling" in 1983.

(41) This subfield was changed from "Developmental and gerontological" to "Developmental" in 1983.

(42) This subfield was changed from "Industrial and personnel" to "Industrial and organizational" in 1983.

(43) This subfield was originally named "Aeronautical engineering." In 1966 the term "Astronautical" was added, and in 1983 the term "Aerospace" was added.

(44) "Biomedical" was introduced in 1969, and "Bioengineering" was added in 1983.

(45) These two subfields were merged in 1983.

(46) In 1961 "Nuclear engineering" was deleted from the taxonomy, and previous cases were added to "Engineering physics." In 1969 "Nuclear engineering" was reinstated in the taxonomy.

(47) This subfield was called "Sanitary and environmental" prior to 1983.

(48) This subfield was originally specified as "Metallurgy and metallurgical engineering." The term "Physical" was introduced in 1967. It was changed to "Metallurgical" in 1983.

(49) "Mining engineering" was deleted in 1961 but was restored to the taxonomy in 1969. The name was changed to "Mining and mineral" in 1983.

(50) The subfield "Fuel technology and petroleum engineering" was added to the Engineering section of the taxonomy in 1973. The name was changed to "Petroleum" in 1983 (also see footnote 8).

(51) This subfield was introduced as "Systems design and systems science" in 1975. It was changed to "Systems" in 1983.

(52) Non-science/engineering doctorates in this table include doctorates whose field of specialization is unclassified.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89

	Year of doctorate														
Field of study	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
U.S. CITIZENS															
NATIVE AMERICAN															
TOTAL, SCIENCE/ENGINEERING	13	10	29	22	28	27	26	38	27	31	41	52	52	41	52
TOTAL, SCIENCES	12	10	28	20	25	24	22	35	27	28	40	46	45	37	45
PHYSICAL SCIENCES	-	-	6	4	1	3	1	3	6	4	3	5	7	6	10
Physics/astronomy	-	-	4	1	-	-	-	3	3	1	1	-	1	1	5
Astrophysics(1)	-	-	-	-	-	-	-	1	1	-	-	-	-	-	2
Atomic/molecular	-	-	1	-	-	-	-	-	-	-	1	-	-	-	1
Elementary particle	-	-	-	-	-	-	-	1	1	1	-	-	-	-	1
Plasma	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Solid state	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-
Physics, general	-	-	2	-	-	-	-	-	-	-	-	-	1	1	1
Physics, other	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Chemistry	-	-	2	3	1	3	1	-	3	3	2	5	6	5	5
Analytical	-	-	-	1	-	1	1	-	1	1	1	1	-	-	-
Inorganic	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-
Organic	-	-	1	2	1	1	-	-	-	1	-	1	2	1	2
Pharmaceutical	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-
Physical	-	-	-	-	-	-	-	-	-	-	-	1	1	1	-
Theoretical	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Chemistry, general	-	-	1	-	-	1	-	-	-	-	-	2	1	1	2
Chemistry, other	-	-	-	-	-	-	-	-	-	1	1	-	1	-	1
EARTH, ATMOS, & MARINE SCI	-	-	-	-	2	2	-	-	2	-	1	2	-	2	6
Atmospheric dynamics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Environmental sciences(9)	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Geochemistry(10)	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1
Geology(11)	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-
Geophysics/seismology(12)	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Marine sciences(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Minerology, petrology(10)	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-
Oceanography	-	-	-	-	-	-	-	-	1	-	-	-	-	1	1
Paleontology	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Stratigraphy, sediment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Earth sciences, general(16)	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
MATHEMATICS	3	-	1	1	-	-	1	1	-	3	-	1	-	2	-
Algebra	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Analysis/funct analysis(17)	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Applied mathematics	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-
Geometry	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Probability/math stat (18)	1	-	1	-	-	-	-	-	-	1	-	-	-	-	-
Mathematics, general	-	-	-	1	-	-	1	-	-	1	-	-	-	2	-
COMPUTER/INFORMATION SCIENCES	-	-	-	-	1	-	-	1	1	-	-	-	3	1	2
Computer sciences	-	-	-	-	1	-	-	1	-	-	-	-	2	-	2
Information sci/systems(2)	-	-	-	-	-	-	-	-	1	-	-	-	1	1	-
AGRICULTURAL & BIOLOGICAL SCI	1	3	7	7	3	6	7	10	5	11	17	17	13	12	9
Agricultural sciences	-	1	1	2	-	1	1	3	1	1	4	-	2	6	2
Agronomy	-	-	-	1	-	-	-	-	-	-	1	-	-	1	-
Animal breeding/genetics(20)	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Animal sci/nutrition(21)	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-
Fisheries science(22)	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-
Wildlife/range mgmt(22)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Food sciences(23)	-	-	-	1	-	1	-	-	-	-	1	-	-	-	-
Food sciences, other(23)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Forestry science(24)	-	-	1	-	-	-	-	1	1	-	2	-	1	-	-
Forestry&relatd sci, oth(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Plant breeding/genetics(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Plant pathology(25)	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Soil sciences(26)	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Soil sciences, other(26)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Agriculture, other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Biological sciences	1	2	6	5	3	5	6	7	4	10	13	17	11	6	7
Anatomy	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-
Biochemistry	-	-	-	-	1	1	1	-	-	1	2	2	-	-	1
Biometrics/biostat	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Biophysics	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Botany, other(27)	-	-	-	-	-	-	-	-	-	1	3	1	-	1	-
Botany(27)	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-
Cell biology(28)	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-
Ecology	-	-	-	-	-	-	-	-	-	-	1	-	2	-	-
Embryology	-	-	1	-	-	1	-	-	-	1	-	-	-	-	-
Entomology	-	-	-	-	1	-	1	1	-	-	-	1	-	-	-
Genetics(29)	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Human/animal pathology(30)	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1
Pathology(30)	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Human/animal pharmacol	-	-	1	-	-	-	-	2	-	-	-	1	-	-	1
Human/animal physiol(31)	-	-	-	-	-	-	-	-	1	1	-	1	1	1	1
Animal physiology(31)	-	-	1	-	1	1	1	1	-	-	-	-	-	-	-
Plant physiology(31)	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Immunology	-	-	-	-	-	-	-	1	-	3	-	2	-	3	-
Microbiology(32)	-	-	-	-	-	-	-	-	-	-	1	1	1	-	-
Bacteriology(32)	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Microbiology/bacteriol(32)	-	-	-	2	-	1	1	-	-	-	-	-	-	-	-
Molecular biology	-	-	2	-	-	-	-	-	-	1	3	-	2	-	-
Neurosciences	-	-	-	-	-	-	-	-	-	-	-	2	1	-	-
Nutritional sciences(33)	-	-	-	-	-	1	1	-	-	-	-	-	-	-	1
Toxicology(2)	-	-	-	-	-	-	-	-	-	-	1	2	1	-	-
Zoology, other(34)	-	-	-	-	-	-	-	-	1	-	-	-	-	1	1
Zoology(34)	-	-	1	1	-	-	-	1	-	-	-	-	-	-	-
Biological sci, general	-	-	-	1	-	-	-	-	1	1	-	3	1	-	1

See footnotes at end of table.

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Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

Field of study	Year of doctorate 1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
U.S. CITIZENS															
NATIVE AMERICAN															
SOCIAL SCIENCES	3	3	5	5	8	7	4	4	4	4	9	12	6	7	7
Agricultural economics	-	-	1	-	-	-	1	-	-	-	-	-	-	1	-
Anthropology	-	-	-	-	2	-	1	-	2	2	3	2	1	2	1
Area studies	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Criminology(35)	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Demography(2)	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Economics	1	1	-	1	2	2	2	-	-	1	2	2	-	-	1
Geography	-	1	-	-	-	1	-	-	-	-	-	-	-	1	-
International relations	-	-	-	-	-	1	-	-	-	-	-	-	2	-	-
Linguistics	-	-	-	2	1	-	-	-	1	-	1	1	-	1	-
Pol sci/government(37)	-	-	-	-	-	-	-	-	1	-	1	-	-	-	1
Political science(37)	-	1	2	-	-	1	-	1	-	-	-	-	-	-	-
Sociology	1	-	1	1	3	2	-	2	-	1	-	4	2	2	1
Urban studies(38)	1	-	1	-	-	-	-	1	-	-	-	-	1	-	-
Social sciences, general	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Social sciences, other	-	-	-	1	-	-	-	-	-	-	1	2	-	-	1
PSYCHOLOGY	5	4	9	3	10	6	9	16	9	6	10	9	16	7	11
Clinical	1	-	3	2	5	2	4	6	4	2	2	7	5	4	2
Cognitive(2)	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Comparative(39)	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Counseling(40)	-	-	2	-	1	1	-	4	1	2	3	-	3	1	4
Developmental(41)	-	-	-	-	-	-	-	1	1	-	-	-	1	1	1
Educational	-	1	1	1	-	1	1	-	-	-	1	-	1	-	-
Experimental(39)	1	2	1	-	-	-	1	-	1	1	-	-	-	-	-
Indust/organizational(42)	-	-	-	-	1	-	1	-	-	-	1	1	-	-	-
Physiological(39)	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
School	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Social	-	-	-	-	1	-	-	2	-	-	-	-	-	-	1
Psychology, general	-	-	1	-	-	1	-	3	1	1	1	1	5	1	2
Psychology, other	1	1	1	-	1	1	2	-	1	-	1	-	1	-	-
TOTAL, ENGINEERING	1	-	1	2	3	3	4	3	-	3	1	6	7	4	7
Aeronaut/astronautical(43)	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Agricultural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Bioengineering/biomed(44)	-	-	-	-	-	1	-	1	-	-	-	1	-	-	-
Chemical	-	-	-	1	-	-	-	-	-	2	-	-	1	2	1
Civil	-	-	1	-	1	-	1	-	-	1	-	-	-	1	1
Electrical/electronics(45)	-	-	-	-	-	-	-	-	-	-	1	2	3	-	-
Electrical(45)	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Engineering science(2)	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Environmental health eng(47)	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Materials science	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Mechanical	-	-	-	-	1	1	2	-	-	-	-	2	1	1	-
Metallurgical(48)	-	-	-	-	-	1	1	-	-	-	-	-	-	-	1
Mining/mineral(49)	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Nuclear(46)	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Engineering, general	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
TOTAL, NON-SCI/ENGINEERING(52)	23	30	36	38	53	48	59	39	54	43	55	47	63	53	41
TOTAL, ALL FIELDS	36	40	65	60	81	75	85	77	81	74	96	99	115	94	93

See footnotes at end of table.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

Field of study	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
	Year of doctorate														
U.S. CITIZENS															
ASIAN															
TOTAL, SCIENCE/ENGINEERING	195	248	250	279	306	325	330	327	345	384	373	397	443	450	487
TOTAL, SCIENCES	134	189	183	216	237	252	253	255	279	289	283	317	308	309	315
PHYSICAL SCIENCES	36	53	39	53	52	54	46	56	66	77	76	75	67	66	75
Physics/astronomy	18	19	20	20	20	14	20	21	27	27	19	19	18	19	33
Acoustics	-	-	-	1	1	1	-	-	1	-	1	-	-	-	-
Astronomy(1)	1	1	-	-	1	1	-	3	-	-	-	3	-	-	-
Astrophysics(1)	1	3	2	1	-	1	-	-	-	-	1	2	1	2	-
Atomic/molecular	2	2	3	2	3	1	2	2	3	2	1	1	2	1	-
Electron(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Electromagnetism(3)	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Elementary particle	1	2	4	4	3	2	1	2	1	5	6	3	4	2	1
Fluids	-	1	-	1	1	-	-	-	1	1	-	1	-	1	-
Nuclear(5)	1	3	2	-	2	-	-	-	2	1	-	1	2	2	2
Optics	-	1	1	-	-	-	1	-	1	-	1	-	-	3	4
Plasma	1	1	1	1	2	-	3	3	4	4	1	2	2	-	2
Polymer(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Solid state	6	2	4	3	2	3	8	5	7	8	4	3	3	2	14
Physics, general	2	3	2	4	4	2	4	2	4	3	2	1	1	2	5
Physics, other	3	-	1	2	1	3	1	4	3	3	2	2	3	3	4
Chemistry	18	34	19	33	32	40	26	35	39	50	57	56	49	47	42
Agricultural/food	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Analytical	1	1	5	4	1	3	3	3	5	3	5	7	4	8	3
Inorganic	3	5	3	4	5	7	4	3	-	2	8	4	3	1	8
Nuclear	-	-	-	1	-	-	-	-	-	2	-	-	1	1	-
Organic	6	9	3	6	14	12	7	6	5	15	13	18	15	9	10
Pharmaceutical	1	1	-	2	-	4	-	2	2	6	6	4	2	3	3
Physical	2	12	5	7	5	6	4	10	12	9	8	7	11	10	10
Polymer	1	2	-	3	-	2	3	1	2	5	9	5	3	5	4
Theoretical	1	-	-	1	2	-	1	-	1	-	-	2	3	-	-
Chemistry, general	2	4	3	3	3	2	2	2	10	4	7	4	5	6	3
Chemistry, other	1	-	-	2	1	4	2	8	2	4	1	5	2	4	1
EARTH, ATMOS, & MARINE SCI	3	2	8	11	4	7	4	12	8	8	8	6	9	8	11
Atmos/meteorol sci, gen(2)	-	-	-	-	-	-	-	-	-	-	1	1	-	1	-
Atmos/meteorol sci, other	-	-	-	-	-	-	2	-	1	-	-	-	-	-	-
Atmospheric dynamics	-	1	-	1	-	-	1	-	-	1	-	-	2	-	-
Atmospheric phys/chem	-	-	-	-	-	-	-	-	2	-	1	-	-	-	-
Environmental sciences(9)	1	-	1	1	1	2	-	2	1	1	1	1	-	-	1
Geochemistry(10)	-	-	-	1	-	1	-	1	-	-	-	-	1	3	1
Geology(11)	-	-	-	-	-	-	-	-	1	-	1	-	-	-	2
Geomorph/glacial geology	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Geophysics/seismology(12)	-	-	4	6	1	1	-	5	-	-	3	2	1	1	4
Geophysics(12)	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrology/water res(13)	1	-	-	1	1	-	-	-	1	1	-	-	-	-	-
Marine sciences(2)	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Marine sciences, other(14)	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-
Meteorology(15)	-	-	-	-	-	-	-	-	-	2	-	1	2	1	-
Minerology, petrology(10)	-	1	1	-	-	-	-	-	-	-	-	-	1	-	1
Oceanography	-	-	1	1	1	2	1	1	-	2	1	1	-	1	1
Paleontology	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-
Stratigraphy, sediment	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Geological sciences, gen(16)	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Geological sciences, oth(16)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Earth sciences, general(16)	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-
Earth sciences, other(16)	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
MATHEMATICS	11	15	14	15	18	12	20	11	13	9	14	14	18	17	13
Algebra	2	-	2	-	-	1	-	-	1	3	1	2	2	-	-
Analysis/funct analysis(17)	2	3	4	5	2	-	2	1	1	-	1	1	1	2	4
Applied mathematics	2	4	-	1	4	2	8	3	1	1	5	2	7	3	3
Computing theory	2	2	1	-	-	1	1	-	-	-	-	-	2	-	-
Geometry	-	1	-	-	-	1	1	1	1	-	-	1	-	1	-
Logic	-	-	-	2	-	-	-	-	-	1	2	-	-	-	-
Number theory	-	1	-	-	1	1	-	1	-	-	-	-	-	1	-
Operations research	-	1	1	-	4	2	-	-	-	-	-	1	-	-	-
Probability/math stat (18)	2	2	1	3	2	2	6	3	7	3	2	2	5	4	2
Topology	-	-	1	1	1	1	1	-	1	-	-	-	1	1	1
Mathematics, general	1	1	2	1	4	1	1	-	1	-	1	5	-	3	2
Mathematics, other	-	-	2	2	-	-	-	2	-	1	2	-	-	2	1
COMPUTER/INFORMATION SCIENCES	-	-	-	2	3	2	4	2	6	12	2	12	10	20	18
Computer sciences	-	-	-	2	3	2	4	2	6	10	2	12	7	18	14
Information sci/systems(2)	-	-	-	-	-	-	-	-	-	2	-	-	3	2	4

See footnotes at end of table.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

Field of study	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
	Year of doctorate														
U.S. CITIZENS															
ASIAN															
AGRICULTURAL & BIOLOGICAL SCI ..	47	68	59	78	88	93	98	104	116	110	114	136	123	110	127
Agricultural sciences	4	3	9	12	6	9	8	8	15	7	8	12	17	9	7
Agronomy	-	-	-	1	1	-	2	2	2	-	1	-	1	2	-
Animal breeding/genetics(20)	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Animal nutrition(21)	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Animal sci/nutrition(21) ...	-	-	1	1	-	1	-	1	-	-	-	-	-	-	-
Animal sciences, other(21) .	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1
Fish/wildlife(22)	-	1	1	2	1	-	-	-	-	-	-	-	-	-	-
Fisheries science(22)	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-
Wildlife management(22)	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Food sciences(23)	-	1	2	5	3	2	4	1	6	3	3	5	7	1	-
Food sciences, other(23) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	4	1
Forestry science(24)	-	-	-	3	-	-	1	-	1	-	1	2	1	-	-
Wood science(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Horticulture science	2	-	3	-	1	2	1	2	2	-	-	-	1	1	1
Plant breeding/genetics(25).	-	-	-	-	-	-	-	-	-	1	2	-	-	1	1
Plant pathology(25)	-	-	-	-	-	-	-	-	1	-	1	1	2	-	1
Phytopathology(25)	2	1	2	-	-	-	-	-	-	-	-	-	-	-	-
Plant sciences, other(25) ..	-	-	-	-	-	-	-	-	-	1	-	-	1	-	1
Soil sciences(26)	-	-	-	-	-	3	-	1	1	2	-	1	2	-	-
Agriculture, other	-	-	-	-	-	1	-	1	-	-	-	1	-	-	-
Biological sciences	43	65	50	66	82	84	90	96	101	103	106	124	106	101	120
Anatomy	2	-	-	-	3	3	3	8	2	2	4	2	1	1	-
Biochemistry	12	14	8	15	14	23	16	17	17	17	21	23	18	15	24
Biometrics/biostat	-	5	2	2	-	2	2	1	2	3	2	-	2	1	5
Biophysics	2	1	4	3	3	3	-	4	7	3	4	1	1	5	3
Botany, other(27)	-	-	-	-	-	-	-	-	-	1	4	3	1	-	2
Botany(27)	-	3	-	2	3	4	2	2	-	-	-	-	-	-	-
Cell biology(28)	-	-	-	-	-	-	-	-	5	3	2	3	-	2	3
Cytology(28)	-	-	1	-	2	2	-	3	-	-	-	-	-	-	-
Ecology	1	1	1	4	3	1	3	-	2	1	5	2	2	1	2
Embryology	-	2	-	1	1	-	1	-	-	-	-	-	-	1	-
Endocrinology(2)	-	-	-	-	-	-	-	-	-	-	1	2	-	-	1
Entomology	-	2	2	2	2	1	7	6	1	2	1	-	3	2	2
Human/animal genetics(29) ..	-	-	-	-	-	-	-	-	1	5	4	3	3	5	5
Plant genetics(29)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Genetics(29)	4	4	1	1	7	6	3	1	-	-	-	-	-	-	-
Human/animal pathology(30) .	-	-	-	-	-	-	-	-	5	3	2	6	5	4	4
Plant pathology(30)	-	-	-	-	-	-	-	-	-	-	1	2	-	-	-
Pathology(30)	1	1	1	-	1	1	2	1	-	-	-	-	-	-	-
Human/animal pharmacol	4	5	3	5	4	3	7	10	9	9	10	10	13	6	10
Human/animal physiol(31) ...	-	-	-	-	-	-	-	-	4	5	3	8	4	6	5
Animal physiology(31)	4	3	5	6	8	6	8	5	-	-	-	-	-	-	-
Plant physiology(31)	-	-	-	1	2	1	-	1	2	3	1	1	3	3	-
Hydrobiology	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Immunology	3	1	3	1	4	6	7	5	4	4	5	7	4	8	7
Microbiology(32)	-	-	-	-	-	-	-	-	11	10	5	11	8	7	8
Microbiology/bacteriol(32) .	3	8	3	7	11	7	9	9	-	-	-	-	-	-	-
Molecular biology	-	1	2	3	4	3	2	8	7	10	11	20	14	13	21
Neurosciences	-	-	-	-	-	-	-	1	2	6	2	2	5	6	3
Nutritional sciences(33) ...	-	3	6	3	2	4	2	1	6	3	4	6	3	3	4
Parasitology	-	-	-	-	1	-	-	-	-	-	1	1	-	-	-
Toxicology(2)	-	-	-	-	-	-	-	-	1	3	4	3	3	1	1
Zoology, other(34)	-	-	-	-	-	-	-	-	6	3	4	-	2	2	3
Zoology(34)	1	2	2	2	2	1	3	5	-	-	-	-	-	-	-
Biological sci, general	2	5	1	3	2	3	10	4	6	4	5	4	6	5	4
Biological sci, other	4	4	5	5	2	4	3	4	1	3	-	4	5	3	3
SOCIAL SCIENCES	24	34	37	40	43	44	48	45	35	41	35	42	43	51	33
Agricultural economics	1	-	1	2	4	-	1	1	1	2	-	2	3	2	-
Anthropology	1	3	3	3	4	6	3	4	1	3	7	3	8	3	3
Area studies	1	2	-	-	-	-	1	1	-	-	-	1	-	1	-
Criminology(35)	-	-	-	-	-	-	-	-	1	-	1	-	1	1	-
Econometrics	-	-	1	1	-	-	-	1	-	-	-	-	-	1	-
Economics	6	8	4	10	5	14	13	16	11	10	8	14	15	21	15
Geography	3	1	1	-	4	5	3	-	-	1	2	2	1	1	1
History of science(36)	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
International relations	1	3	1	1	2	-	-	2	-	1	-	1	-	1	-
Linguistics	-	1	7	3	4	5	4	2	5	4	7	3	3	1	-
Pol sci/government(37)	-	-	-	-	-	-	-	-	5	7	6	3	2	3	4
Political science(37)	-	4	7	4	3	5	9	5	-	-	-	-	-	-	-
Pol sci, public admin(37) ..	4	2	-	-	-	-	-	-	-	-	-	-	-	-	-
Public policy studies(2) ...	-	-	-	-	-	-	-	-	-	-	1	1	-	-	1
Sociology	5	4	8	9	12	5	10	6	7	10	2	8	8	8	7
Statistics	1	1	1	4	-	2	2	1	1	-	1	2	-	3	-
Urban studies(38)	1	1	2	1	3	1	1	3	1	1	-	-	1	2	-
Social sciences, general ...	-	-	-	1	1	-	-	2	1	1	-	-	-	-	-
Social sciences, other	-	2	1	1	1	1	1	1	1	1	-	2	1	3	2

See footnotes at end of table.

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Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

	Year of doctorate														
Field of study	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
U.S. CITIZENS															
ASIAN															
PSYCHOLOGY	13	17	26	17	29	40	33	25	35	32	34	32	38	37	38
Clinical	4	6	5	2	11	17	12	10	12	14	15	21	21	14	20
Cognitive(2)	-	-	-	-	-	-	-	-	1	-	2	1	1	2	1
Comparative(39)	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-
Counseling(40)	-	-	3	-	1	4	4	-	4	1	3	2	4	6	3
Developmental(41)	-	2	3	2	2	3	1	3	3	3	3	2	1	1	1
Educational	1	-	1	3	1	3	2	3	2	2	2	-	2	-	1
Experimental(39)	2	2	1	2	6	2	2	2	1	2	1	1	2	4	1
Indust/organizational(42) ..	1	-	1	1	-	-	-	-	1	-	-	1	1	-	-
Physiological(39)	-	2	2	2	2	3	3	3	3	1	1	1	-	3	2
Quantitative(2)	-	-	-	-	-	-	-	-	1	1	1	-	-	-	2
Personality	1	-	-	1	-	2	1	1	-	-	-	-	-	-	-
Psychometrics	-	-	1	-	1	1	-	-	-	-	-	-	1	-	-
School	1	-	2	-	-	-	1	-	-	-	1	-	-	-	-
Social	3	4	4	-	2	4	1	-	3	5	2	-	3	1	2
Psychology, general	-	1	1	2	1	-	2	3	3	3	1	1	2	5	5
Psychology, other	-	-	2	1	2	1	4	-	-	-	2	2	-	1	-
TOTAL, ENGINEERING	61	59	67	63	69	73	77	72	66	95	90	80	135	141	172
Aeronaut/astronautical(43) .	2	1	1	4	-	-	2	1	1	2	3	1	6	7	5
Agricultural	-	-	-	1	-	-	1	1	-	2	-	-	-	-	-
Bioengineering/biomed(44) ..	-	-	4	3	3	1	-	1	5	1	4	4	2	4	6
Ceramic	-	-	-	-	-	1	-	-	-	1	-	-	-	2	1
Chemical	6	4	8	6	4	2	3	12	11	10	20	17	20	26	33
Civil	10	11	7	5	7	7	7	8	10	7	5	7	14	7	13
Communications(2)	-	-	-	-	-	-	-	-	1	1	-	1	3	4	-
Computer	1	5	3	5	4	2	3	1	2	1	2	2	1	4	3
Electrical/electronics(45) .	-	-	-	-	-	-	-	-	8	22	13	16	37	37	45
Electrical(45)	11	11	15	14	19	13	18	15	2	1	-	-	-	-	-
Electronics(45)	-	1	4	-	4	1	2	5	-	-	-	-	-	-	-
Engineering mechanics	7	1	8	5	2	4	2	2	1	2	4	1	3	4	1
Engineering physics(46)	-	-	-	-	-	-	1	-	-	-	2	2	-	1	1
Engineering science(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Environmental health eng(47)	2	1	1	2	4	1	2	1	1	1	-	1	-	1	1
Industrial	1	-	-	-	1	-	3	2	-	3	-	3	2	4	8
Materials science	2	4	3	1	1	2	6	2	6	7	7	4	7	6	15
Mechanical	11	10	6	7	10	21	11	7	8	16	17	9	22	18	24
Metallurgical(48)	1	1	1	1	-	4	6	-	1	4	4	1	8	3	2
Mining/mineral(49)	-	-	-	-	-	-	-	-	-	2	-	-	-	1	2
Nuclear(46)	1	1	3	-	4	4	4	4	2	2	3	3	2	2	2
Operations research	2	-	-	2	2	3	2	3	1	1	2	2	2	1	-
Petroleum(50)	-	1	-	-	-	1	-	1	-	-	1	-	-	3	3
Polymer(2)	-	-	-	-	-	-	-	-	1	2	1	-	4	3	3
Systems(51)	2	2	2	2	3	3	1	1	1	5	1	1	1	-	1
Engineering, general	-	3	-	2	-	2	1	2	1	-	-	2	-	1	1
Engineering, other	2	2	1	3	1	1	2	3	3	2	1	3	1	1	2
TOTAL, NON-SCI/ENGINEERING(52) ...	91	86	89	111	122	133	135	125	147	128	143	133	99	163	137
TOTAL, ALL FIELDS	286	334	339	390	428	458	465	452	492	512	516	530	542	613	624

See footnotes at end of table.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

Field of study	Year of doctorate 1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
U.S. CITIZENS															
BLACK															
TOTAL, SCIENCE/ENGINEERING	258	257	286	294	298	276	282	285	283	299	278	254	234	260	275
TOTAL, SCIENCES	247	245	275	285	281	265	266	276	264	287	259	240	222	241	252
PHYSICAL SCIENCES	30	23	30	35	34	13	19	21	19	28	23	20	16	28	25
Physics/astronomy	10	5	10	8	6	3	6	11	8	10	4	7	5	11	5
Acoustics	-	-	-	-	-	-	-	-	-	2	-	-	-	1	1
Astronomy(1)	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-
Astrophysics(1)	1	-	-	-	1	1	1	-	-	-	-	-	1	-	-
Atomic/molecular	-	-	3	-	1	-	1	1	1	-	-	3	-	1	-
Elementary particle	2	2	3	3	-	-	1	3	1	-	1	2	1	3	-
Nuclear(5)	1	-	1	1	2	-	-	1	1	1	-	-	-	-	-
Optics	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Plasma	-	-	-	-	-	1	1	-	-	1	-	-	-	-	-
Solid state	3	2	3	1	1	-	-	4	3	4	1	1	1	2	2
Physics, general	-	-	-	2	-	-	2	1	2	-	1	1	1	2	2
Physics, other	3	1	-	1	1	1	-	-	-	1	1	-	-	2	-
Chemistry	20	18	20	27	28	10	13	10	11	18	19	13	11	17	20
Agricultural/food	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Analytical	2	3	4	5	2	-	-	-	-	1	1	4	4	4	2
Inorganic	4	3	2	5	5	2	3	1	1	1	2	1	3	2	2
Nuclear	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-
Organic	13	1	5	4	9	2	3	3	4	8	9	1	2	5	6
Pharmaceutical	-	-	-	-	-	-	1	-	-	-	-	-	-	-	3
Physical	-	6	5	7	8	2	2	3	4	6	2	3	1	1	4
Polymer	-	-	2	2	1	-	-	1	-	-	1	2	1	1	-
Theoretical	1	1	1	-	1	-	-	-	-	-	-	-	-	1	-
Chemistry, general	-	2	1	3	2	2	4	2	1	1	2	1	-	3	2
Chemistry, other	-	-	-	1	-	2	-	-	1	1	1	1	-	-	1
EARTH, ATMOS, & MARINE SCI	1	-	2	4	2	1	3	2	1	2	2	-	1	2	3
Atmos/meteorol sci, other ..	-	-	-	-	1	-	-	-	1	-	-	-	1	-	-
Atmospheric phys/chem	-	-	-	-	1	-	1	1	-	-	-	-	-	-	-
Environmental sciences(9) ..	1	-	-	2	-	-	1	-	-	-	1	-	-	1	1
Geology(11)	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1
Geomorph/glacial geology ...	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Geophysics/seismology(12) ..	-	-	-	-	-	-	1	1	-	-	-	-	-	1	-
Hydrology/water res(13)	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-
Meteorology(15)	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Oceanography	-	-	1	-	-	-	-	-	-	1	-	-	-	-	1
Earth sciences, general(16).	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
MATHEMATICS	10	5	10	12	11	11	7	6	3	3	3	5	10	2	6
Algebra	2	2	-	2	2	2	-	1	-	-	-	-	-	-	1
Analysis/funct analysis(17).	1	1	3	2	3	2	3	-	-	1	-	-	1	-	-
Applied mathematics	1	-	3	2	1	1	-	-	-	-	-	3	2	1	2
Computing theory	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Geometry	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-
Logic	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-
Number theory	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-
Operations research	1	-	-	1	1	-	1	1	-	1	-	-	-	-	-
Probability/math stat (18) .	2	-	1	2	1	2	2	2	1	1	1	1	3	-	-
Topology	1	1	1	1	1	-	-	-	1	-	-	-	-	-	-
Mathematics, general	2	-	1	-	1	2	1	-	1	-	-	1	2	-	2
Mathematics, other	-	1	-	1	-	2	-	-	-	-	2	-	1	-	1
COMPUTER/INFORMATION SCIENCES ..	-	-	-	-	1	-	2	1	3	2	2	-	2	1	1
Computer sciences	-	-	-	-	1	-	2	1	2	2	2	-	1	1	-
Information sci/systems(2) .	-	-	-	-	-	-	-	-	1	-	-	-	1	-	1

See footnotes at end of table.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

	Year of doctorate														
Field of study	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
U.S. CITIZENS															
BLACK															
AGRICULTURAL & BIOLOGICAL SCI ..	49	53	40	57	41	49	52	48	49	55	49	47	52	44	50
Agricultural sciences	3	8	10	8	7	6	9	5	12	10	5	7	7	8	6
Agronomy	1	3	1	1	2	1	-	2	4	1	-	-	-	1	-
Animal nutrition(21)	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-
Animal sci/nutrition(21) ...	1	1	1	2	-	-	2	2	-	-	-	-	-	-	-
Animal sciences, other(21) .	-	-	-	-	-	-	-	-	3	-	-	-	1	1	-
Fish/wildlife(22)	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Fisheries science(22)	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-
Food sciences(23)	-	1	2	1	1	-	1	-	-	4	1	2	1	1	-
Forestry science(24)	-	-	-	-	-	-	1	-	1	-	2	-	-	-	-
Forestry&relatd sci, oth(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Horticulture science	-	2	-	-	2	1	-	-	2	-	-	1	1	-	1
Plant breeding/genetics(25).	-	-	-	-	-	-	-	-	1	-	-	-	1	1	1
Plant pathology(25)	-	-	-	-	-	-	-	-	-	2	1	3	1	1	1
Phytopathology(25)	-	-	2	-	1	2	1	-	-	-	-	-	-	-	-
Plant sciences, other(25) ..	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-
Soil sciences(26)	1	1	3	1	-	-	3	-	-	-	-	-	2	1	-
Agriculture, general	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Agriculture, other	-	-	1	2	1	2	1	1	-	-	1	-	-	-	1
Biological sciences	46	45	30	49	34	43	43	43	37	45	44	40	45	36	44
Anatomy	1	-	-	2	2	2	1	-	-	3	-	-	-	-	1
Biochemistry	7	3	5	9	4	7	8	4	5	4	4	5	6	7	4
Biometrics/biostat	-	-	-	-	2	-	-	2	3	1	2	-	1	1	1
Biophysics	2	-	1	-	-	2	-	1	-	-	-	-	-	1	3
Botany, other(27)	-	-	-	-	-	-	-	-	-	1	1	-	2	-	-
Botany(27)	2	1	3	5	2	1	1	-	-	-	-	-	-	-	-
Cell biology(28)	-	-	-	-	-	-	-	-	1	5	1	4	2	2	2
Cytology(28)	-	1	-	-	1	-	-	1	-	-	-	-	-	-	-
Ecology	1	2	2	-	-	2	-	-	-	-	-	-	2	-	1
Embryology	-	-	-	-	2	-	3	-	-	1	-	-	-	-	-
Endocrinology(2)	-	-	-	-	-	-	-	-	-	2	-	-	-	2	-
Entomology	2	1	1	-	-	1	-	-	-	-	1	2	1	1	3
Human/animal genetics(29) ..	-	-	-	-	-	-	-	-	1	1	2	-	1	1	1
Plant genetics(29)	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Genetics(29)	3	6	-	-	-	-	-	1	-	-	-	-	-	-	-
Human/animal pathology(30) .	-	-	-	-	-	-	-	-	3	3	1	4	-	-	3
Plant pathology(30)	-	-	-	-	-	-	-	-	1	-	2	-	-	-	-
Pathology(30)	1	-	-	2	-	1	-	3	-	-	-	-	-	-	-
Human/animal pharmacol	1	3	1	4	1	3	3	1	-	3	5	4	1	1	2
Human/animal physiol(31) ...	-	-	-	-	-	-	-	-	3	3	4	2	1	4	1
Animal physiology(31)	6	5	-	4	5	1	2	4	-	-	-	-	-	-	-
Plant physiology(31)	-	-	1	-	-	1	-	-	1	1	-	2	1	-	-
Immunology	-	4	-	1	2	2	2	1	1	1	2	-	-	-	2
Microbiology(32)	-	-	-	-	-	-	-	-	5	4	5	4	4	4	5
Bacteriology(32)	-	-	-	-	-	-	-	-	-	1	1	1	-	-	-
Microbiology/bacteriol(32) .	8	3	5	11	5	6	5	5	-	-	-	-	-	-	-
Molecular biology	2	4	1	2	1	5	3	5	2	2	1	1	3	2	2
Neurosciences	-	-	-	-	-	-	-	1	2	1	-	-	2	1	2
Nutritional sciences(33) ...	-	1	2	2	5	2	6	5	2	3	3	4	4	2	4
Parasitology	-	-	-	-	2	-	-	1	-	2	1	-	1	2	-
Toxicology(2)	-	-	-	-	-	-	-	-	1	1	1	-	2	1	1
Zoology, other(34)	-	-	-	-	-	-	-	-	3	1	5	1	4	4	1
Zoology(34)	3	6	1	4	-	2	3	5	-	-	-	-	-	-	-
Biological sci, general	3	2	5	2	-	4	4	2	2	1	-	4	4	-	1
Biological sci, other	4	3	2	1	-	1	2	1	1	-	1	2	3	-	4
SOCIAL SCIENCES	81	78	101	81	80	76	72	86	79	82	79	66	53	65	73
Agricultural economics	-	1	1	4	1	4	3	2	-	1	4	-	1	2	1
Anthropology	5	12	1	4	6	10	7	7	7	10	9	3	7	5	6
Area studies	-	2	-	2	1	2	-	-	1	1	-	2	1	1	-
Criminology(35)	-	-	-	-	-	-	-	4	2	2	2	2	1	8	4
Econometrics	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Economics	9	7	12	4	7	5	10	8	13	11	5	7	7	11	7
Geography	5	3	3	2	2	5	2	2	3	3	-	-	2	-	3
History of science(36)	-	-	-	-	-	-	-	-	-	-	-	1	2	-	-
International relations	1	1	3	2	-	1	2	3	3	1	1	-	-	-	4
Linguistics	4	2	4	2	3	7	2	3	4	2	2	3	2	1	3
Pol sci/government(37)	-	-	-	-	-	-	-	-	16	12	17	15	10	7	10
Political science(37)	-	12	28	23	23	11	18	20	-	-	-	-	-	-	-
Pol sci, public admin(37) ..	16	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Public policy studies(2) ...	-	-	-	-	-	-	-	-	2	2	2	7	4	4	3
Sociology	24	29	30	26	28	19	21	29	22	26	24	20	10	14	25
Urban studies(38)	8	3	9	4	5	5	2	5	3	3	6	1	4	5	3
Social sciences, general ...	1	-	6	4	1	1	1	1	1	-	1	-	1	1	-
Social sciences, other	8	5	3	4	3	6	4	2	2	8	6	5	1	6	4

See footnotes at end of table.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

Field of study	Year of doctorate														
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
U.S. CITIZENS															
BLACK															
PSYCHOLOGY	76	86	92	96	112	115	111	112	110	115	101	102	88	99	94
Clinical	21	29	39	39	39	43	54	44	46	45	50	50	43	44	44
Cognitive(2)	-	-	-	-	-	-	-	-	-	1	-	1	1	1	1
Comparative(39)	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-
Counseling(40)	8	10	7	9	13	9	17	17	14	24	15	14	16	17	14
Developmental(41)	1	5	1	4	6	11	2	9	10	3	4	-	3	6	3
Educational	3	5	2	6	7	7	2	3	2	5	5	-	1	7	3
Experimental(39)	6	3	4	4	3	2	3	3	2	3	1	1	-	-	4
Indust/organizational(42)	-	1	1	1	-	4	4	2	3	5	1	5	2	1	2
Physiological(39)	2	2	1	4	-	5	1	1	1	1	1	-	-	-	2
Quantitative(2)	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Personality	2	4	4	1	3	-	3	1	1	1	1	1	2	2	1
Psychometrics	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-
School	4	5	3	4	4	5	2	3	1	6	3	4	2	3	4
Social	11	8	8	9	14	12	9	10	15	9	11	11	7	3	5
Psychology, general	11	7	6	6	12	9	8	13	11	8	4	12	9	15	6
Psychology, other	7	6	15	9	9	8	6	6	4	4	4	3	2	-	5
TOTAL, ENGINEERING	11	12	11	9	17	11	16	9	19	12	19	14	12	19	23
Aeronaut/astronautical(43)	-	1	-	-	1	1	-	1	1	-	1	-	1	-	1
Agricultural	-	-	-	-	1	1	-	-	-	-	1	-	-	-	-
Bioengineering/biomed(44)	-	-	-	1	1	-	1	-	-	1	-	-	1	1	2
Chemical	-	2	-	1	1	-	2	-	1	2	2	1	3	4	1
Civil	1	1	-	1	2	-	2	-	3	-	2	2	1	-	1
Computer	-	-	1	1	-	-	-	-	-	1	-	-	-	1	-
Electrical/electronics(45)	-	-	-	-	-	-	-	-	2	1	6	2	-	6	8
Electrical(45)	4	4	4	1	6	5	6	1	-	-	-	-	-	-	-
Electronics(45)	1	-	1	-	3	-	1	-	-	-	-	-	-	-	-
Engineering mechanics	-	-	-	-	-	-	1	1	-	-	-	1	-	-	1
Engineering physics(46)	1	-	1	-	-	-	-	-	1	-	-	-	-	-	-
Engineering science(2)	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Environmental health eng(47)	-	-	1	1	-	-	1	-	1	-	-	-	-	-	-
Industrial	1	-	1	2	-	-	-	-	1	1	1	-	-	3	2
Materials science	-	1	-	-	-	1	-	1	1	-	-	1	1	1	-
Mechanical	3	1	1	-	1	2	1	2	4	2	1	2	2	-	4
Metallurgical(48)	-	-	-	-	-	-	-	-	3	-	1	-	1	-	-
Mining/mineral(49)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Nuclear(46)	-	1	1	-	-	-	1	1	-	1	1	3	-	2	-
Operations research	-	1	-	-	-	1	-	1	-	-	-	-	-	1	-
Petroleum(50)	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1
Polymer(2)	-	-	-	-	-	-	-	-	1	-	2	-	-	-	-
Systems(51)	-	-	-	-	1	-	-	-	-	1	1	-	-	-	-
Engineering, general	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Engineering, other	-	-	-	-	-	-	-	1	-	2	-	2	-	-	1
TOTAL, NON-SCI/ENGINEERING(52)	741	838	830	739	758	756	731	762	639	654	634	568	533	553	536
TOTAL, ALL FIELDS	999	1095	1116	1033	1056	1032	1013	1047	922	953	912	822	767	813	811

See footnotes at end of table.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

Field of study	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
	Year of doctorate														
U.S. CITIZENS															
HISPANIC															
TOTAL, SCIENCE/ENGINEERING	130	121	162	173	180	171	198	226	237	254	244	276	305	327	303
TOTAL, SCIENCES	115	106	144	154	165	153	186	203	219	232	228	251	281	284	270
PHYSICAL SCIENCES	16	14	28	17	25	20	26	21	24	38	26	35	48	57	52
Physics/astronomy	9	6	9	4	12	9	6	6	5	12	12	11	8	14	12
Acoustics	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Astronomy(1)	-	-	-	-	-	2	-	-	-	1	-	1	-	2	-
Astrophysics(1)	-	-	-	1	1	1	2	-	-	-	-	-	-	-	1
Atomic/molecular	1	1	1	1	1	-	-	2	-	2	-	1	3	-	-
Elementary particle	-	-	2	1	2	1	2	-	1	2	1	2	-	1	2
Fluids	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-
Nuclear(5)	2	1	1	-	-	1	-	-	-	1	2	-	1	1	-
Optics	-	1	1	-	-	-	-	-	1	-	-	4	-	1	-
Plasma	1	-	-	-	-	-	-	1	1	1	1	-	-	1	1
Solid state	1	2	1	1	3	2	2	3	-	4	4	-	2	6	5
Physics, general	2	1	1	-	2	1	-	-	1	-	1	2	1	-	2
Physics, other	2	-	1	-	2	1	-	-	1	1	2	1	1	2	1
Chemistry	7	8	19	13	13	11	20	15	19	26	14	24	40	43	40
Analytical	-	2	1	3	2	4	1	-	4	3	3	4	8	11	2
Inorganic	3	1	2	1	-	1	3	2	-	2	3	4	6	3	7
Nuclear	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Organic	3	1	4	5	5	4	7	5	9	10	5	8	13	9	9
Pharmaceutical	-	1	1	-	-	-	1	-	-	1	-	-	2	2	1
Physical	1	3	6	1	5	2	4	3	4	4	3	5	5	12	11
Polymer	-	-	1	1	-	-	-	1	1	-	-	-	-	-	2
Theoretical	-	-	-	1	1	-	1	-	-	-	-	-	1	-	-
Chemistry, general	-	-	4	1	-	-	2	3	-	5	-	3	4	5	3
Chemistry, other	-	-	-	-	-	-	-	1	1	1	-	-	1	1	5
EARTH, ATMOS, & MARINE SCI	3	-	11	4	5	3	6	6	9	1	4	5	3	8	6
Applied geology(8)	-	-	1	-	-	-	-	1	-	-	1	-	-	-	-
Atmos/meteorol sci, other	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-
Atmospheric dynamics	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Atmospheric phys/chem	-	-	-	-	1	-	1	-	-	-	-	-	-	1	1
Environmental sciences(9)	-	-	1	-	1	-	-	1	1	-	1	-	-	1	-
Geochemistry(10)	1	-	-	-	1	-	1	1	1	-	-	-	-	1	-
Geology(11)	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-
Structural geology(11)	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Geophysics/seismology(12)	-	-	2	1	-	1	1	1	-	-	1	2	1	1	2
Hydrology/water res(13)	-	-	-	-	1	-	-	-	2	-	-	-	-	1	-
Marine sciences(2)	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-
Marine sciences, other(14)	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-
Meteorology(15)	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Minerology, petrology(10)	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1
Oceanography	2	-	1	-	1	-	1	-	3	1	-	2	1	-	1
Paleontology	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1
Stratigraphy, sediment	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-
Earth sciences, general(16)	-	-	1	2	-	1	1	-	-	-	-	-	-	-	-
Earth sciences, other(16)	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Physical sciences, other(2)	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
MATHEMATICS	8	9	7	5	6	3	4	6	4	11	7	9	9	3	8
Algebra	-	1	2	-	1	-	-	3	1	-	-	1	1	-	3
Analysis/funct analysis(17)	2	3	-	-	-	-	-	-	-	2	1	-	1	-	1
Applied mathematics	3	1	2	-	-	1	1	1	1	-	2	4	2	1	-
Computing theory	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-
Geometry	-	-	-	-	-	-	1	1	1	-	1	-	-	-	2
Number theory	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Operations research	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Probability/math stat (18)	-	1	1	1	4	1	-	-	-	5	1	2	1	1	1
Topology	1	-	1	1	-	-	-	-	-	2	1	-	2	-	-
Mathematics, general	-	1	-	-	1	1	1	1	1	2	1	2	1	1	1
Mathematics, other	1	-	-	2	-	-	1	-	-	-	-	-	1	-	-
COMPUTER/INFORMATION SCIENCES	-	-	-	-	1	1	-	1	-	3	5	4	4	2	4
Computer sciences	-	-	-	-	1	1	-	1	-	3	2	3	4	2	3
Information sci/systems(2)	-	-	-	-	-	-	-	-	-	-	3	1	-	-	1

See footnotes at end of table.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

Field of study	Year of doctorate 1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
U.S. CITIZENS															
HISPANIC															
AGRICULTURAL & BIOLOGICAL SCI ..	32	26	25	34	38	30	42	50	41	43	59	59	64	74	71
Agricultural sciences	4	3	3	7	4	4	8	6	2	4	10	7	12	13	12
Agronomy	1	-	1	-	-	-	1	1	1	-	-	1	1	2	3
Animal breeding/genetics(20)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Animal nutrition(21)	-	-	-	-	-	-	-	-	-	-	2	-	2	3	-
Animal sci/nutrition(21) ...	1	-	-	-	-	1	2	-	-	-	-	-	-	-	-
Dairy science(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Animal sciences, other(21) .	-	-	-	-	-	-	-	-	-	2	1	2	2	1	1
Fish/wildlife(22)	-	-	-	1	1	-	1	-	-	-	-	-	-	-	-
Fisheries science(22)	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-
Wildlife/range mgmt(22)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Food sciences(23)	1	1	-	2	1	1	1	2	-	-	-	2	2	-	-
Food sciences, other(23) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Forestry science(24)	-	-	-	1	1	-	1	1	-	-	-	1	1	-	-
Horticulture science	-	1	1	-	-	-	2	1	-	-	1	1	-	-	1
Plant breeding/genetics(25).	-	-	-	-	-	-	-	-	-	-	2	-	-	2	-
Plant pathology(25)	-	-	-	-	-	-	-	-	-	1	1	-	-	-	2
Phytopathology(25)	-	1	-	2	1	1	-	-	-	-	-	-	-	-	-
Plant sciences, other(25) ..	-	-	-	-	-	-	-	-	1	-	-	-	1	-	1
Soil sciences(26)	-	-	1	-	-	1	-	-	-	1	2	-	-	-	-
Soil sciences, other(26) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1
Agriculture, general	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Agriculture, other	1	-	-	-	-	-	-	1	-	-	1	-	2	-	-
Biological sciences	28	23	22	27	34	26	34	44	39	39	49	52	52	61	59
Anatomy	-	-	2	-	3	-	2	1	1	2	1	-	2	1	1
Biochemistry	5	5	3	7	7	5	6	5	6	3	5	11	14	12	9
Biometrics/biostat	-	1	1	-	-	-	-	-	-	-	1	-	-	-	1
Biophysics	-	-	1	-	2	-	-	1	2	-	-	2	2	-	-
Botany, other(27)	-	-	-	-	-	-	-	-	2	2	2	1	-	2	1
Botany(27)	1	3	3	1	2	2	1	2	-	-	-	-	-	-	-
Cell biology(28)	-	-	-	-	-	-	-	-	1	2	2	3	1	-	2
Cytology(28)	2	-	1	-	1	1	1	-	-	-	-	-	-	-	-
Ecology	1	1	-	-	2	2	3	1	2	1	3	2	1	-	2
Embryology	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-
Endocrinology(2)	-	-	-	-	-	-	-	-	-	1	1	1	-	2	-
Entomology	2	1	2	1	2	3	1	3	-	1	4	3	-	4	1
Human/animal genetics(29) ..	-	-	-	-	-	-	-	-	2	-	1	1	-	-	1
Plant genetics(29)	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Genetics(29)	2	-	3	-	-	1	2	2	-	-	-	-	-	-	-
Human/animal pathology(30) .	-	-	-	-	-	-	-	-	1	1	2	1	3	1	1
Plant pathology(30)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Pathology(30)	1	-	1	-	1	-	-	-	-	-	-	-	-	-	-
Human/animal pharmacol	2	-	-	-	1	1	1	2	2	5	1	5	4	6	2
Human/animal physiol(31) ...	-	-	-	-	-	-	-	-	1	3	2	2	4	3	5
Animal physiology(31)	3	2	3	4	2	3	3	3	-	-	-	-	-	-	-
Plant physiology(31)	-	-	-	2	1	-	1	-	-	-	1	2	-	-	3
Immunology	-	-	-	2	1	1	2	4	3	1	1	3	1	3	4
Microbiology(32)	-	-	-	-	-	-	-	-	5	4	4	6	3	2	4
Microbiology/bacteriol(32) .	5	4	2	4	1	3	5	4	-	-	-	-	-	-	-
Molecular biology	2	-	-	1	2	1	2	5	2	1	3	4	1	5	7
Neurosciences	-	-	-	-	-	-	-	1	3	1	2	1	2	3	5
Nutritional sciences(33) ...	-	1	-	3	-	1	-	2	1	-	2	3	4	2	2
Parasitology	1	-	-	1	1	-	1	-	-	1	-	-	-	1	-
Toxicology(2)	-	-	-	-	-	-	-	-	-	-	1	-	3	1	-
Zoology, other(34)	-	-	-	-	-	-	-	-	2	1	1	1	3	3	3
Zoology(34)	-	2	-	1	1	1	1	5	-	-	-	-	-	-	-
Biological sci, general	-	3	-	-	2	1	1	2	1	5	4	-	2	5	4
Biological sci, other	1	-	-	-	1	-	1	1	2	3	4	-	2	4	1
SOCIAL SCIENCES	26	30	39	50	48	45	49	50	57	55	63	58	61	51	47
Agricultural economics	-	2	2	3	1	1	2	-	1	1	3	1	2	-	2
Anthropology	3	8	6	5	4	2	4	6	7	4	14	10	12	11	6
Area studies	1	1	-	2	1	-	-	1	1	1	-	-	-	-	-
Criminology(35)	-	-	-	-	-	-	1	-	3	-	-	-	3	-	-
Demography(2)	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1
Econometrics	-	-	-	-	-	1	-	1	-	1	-	-	-	-	-
Economics	3	1	2	4	8	9	9	7	7	10	11	5	9	8	10
Geography	-	-	3	2	1	1	2	1	2	2	3	1	2	1	-
History of science(36)	-	-	-	-	-	-	-	-	-	-	-	2	-	-	1
International relations	-	2	2	2	1	-	1	1	3	-	3	2	3	-	2
Linguistics	-	-	4	1	3	2	3	4	3	7	3	5	5	6	2
Pol sci/government(37)	-	-	-	-	-	-	-	-	11	10	6	9	6	6	4
Political science(37)	-	7	5	8	12	10	7	7	-	-	-	-	-	-	-
Pol sci, public admin(37) ..	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Public policy studies(2) ...	-	-	-	-	-	-	-	-	2	1	-	1	6	1	-
Sociology	8	6	14	12	12	13	15	16	10	16	15	12	9	13	16
Statistics	1	1	-	-	-	1	-	-	-	-	-	1	1	-	-
Urban studies(38)	-	1	-	4	1	2	3	-	3	-	2	2	-	-	-
Social sciences, general ...	1	-	-	1	-	1	1	-	-	-	-	1	1	4	1
Social sciences, other	-	1	1	6	4	2	1	6	4	2	2	6	2	1	2

See footnotes at end of table.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

	Year of doctorate														
Field of study	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
U.S. CITIZENS															
HISPANIC															
PSYCHOLOGY	30	27	34	44	42	51	59	69	84	81	64	81	92	89	82
Clinical	7	8	17	18	22	23	27	27	42	35	22	42	37	39	45
Cognitive(2)	-	-	-	-	-	-	-	-	3	2	1	-	1	-	-
Comparative(39)	-	1	-	-	1	-	1	1	-	-	-	-	-	1	-
Counseling(40)	5	4	4	3	4	8	6	9	11	12	11	7	20	9	10
Developmental(41)	1	2	1	1	-	3	1	5	5	7	5	5	5	3	1
Educational	4	1	3	3	1	2	3	5	1	2	3	2	2	3	2
Experimental(39)	2	1	-	2	-	5	3	4	4	3	-	3	1	7	1
Indust/organizational(42)	1	-	2	-	1	1	1	-	-	1	1	2	3	3	1
Physiological(39)	2	5	1	4	1	1	1	2	-	4	1	2	4	4	1
Quantitative(2)	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Personality	1	-	-	2	2	1	-	-	-	-	-	-	1	-	1
Psychometrics	-	1	-	1	-	-	-	-	-	-	-	-	-	3	-
School	-	-	2	2	-	-	3	3	1	2	4	1	3	1	6
Social	-	2	-	3	3	-	4	5	8	1	3	4	6	6	-
Psychology, general	3	1	1	3	3	4	5	6	8	9	8	6	5	7	11
Psychology, other	4	1	3	2	4	3	4	2	1	3	5	6	4	3	3
TOTAL, ENGINEERING	15	15	18	19	15	18	12	23	18	22	16	25	24	43	33
Aeronaut/astronautical(43)	-	-	2	1	-	-	-	-	-	-	-	1	1	1	1
Agricultural	-	-	-	-	1	1	-	-	-	-	2	-	-	3	1
Bioengineering/biomed(44)	-	-	1	1	1	-	-	-	1	2	-	2	2	3	3
Ceramic	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
Chemical	4	3	4	-	3	4	1	4	4	2	2	4	7	3	4
Civil	-	-	2	4	1	5	4	1	4	1	6	3	1	10	4
Communications(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Computer	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-
Electrical/electronics(45)	-	-	-	-	-	-	-	-	2	5	1	7	4	9	9
Electrical(45)	2	3	4	2	3	3	-	5	1	1	-	-	-	-	-
Electronics(45)	-	1	-	1	1	2	2	1	-	-	-	-	-	-	-
Engineering mechanics	1	2	-	-	-	1	-	-	-	-	-	1	-	-	-
Engineering physics(46)	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Engineering science(2)	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-
Environmental health eng(47)	2	3	-	2	1	-	3	-	1	2	-	-	-	-	1
Industrial	-	-	1	-	-	-	-	2	-	1	-	-	1	2	-
Materials science	1	-	-	-	1	-	-	2	1	1	-	1	2	4	-
Mechanical	1	1	2	2	-	-	1	1	-	4	3	2	4	5	3
Metallurgical(48)	1	-	-	2	-	1	-	-	-	-	-	-	-	-	-
Mining/mineral(49)	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Nuclear(46)	1	-	-	1	2	-	-	1	2	1	-	-	1	1	2
Operations research	1	-	-	1	-	1	-	1	1	-	1	-	1	-	1
Petroleum(50)	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Polymer(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Systems(51)	1	1	-	-	-	-	1	-	-	1	-	2	-	-	-
Engineering, general	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
Engineering, other	-	1	-	-	-	-	-	4	-	-	-	2	-	1	1
TOTAL, NON-SCI/ENGINEERING(52)	173	219	261	300	282	241	266	309	302	282	317	295	313	269	266
TOTAL, ALL FIELDS	303	340	423	473	462	412	464	535	539	536	561	571	618	596	569

See footnotes at end of table.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

Field of study	Year of doctorate														
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
U.S. CITIZENS															
WHITE															
TOTAL, SCIENCE/ENGINEERING	13063	12853	12288	11680	11835	11844	12090	12034	12116	11921	11659	11616	11482	11868	11776
TOTAL, SCIENCES	11509	11432	10983	10606	10749	10776	11081	11019	11100	10859	10562	10387	10152	10339	10202
PHYSICAL SCIENCES	2119	1980	1833	1699	1754	1632	1724	1827	1879	1854	1850	1817	1888	1880	1757
Physics/astronomy	838	817	717	686	676	609	622	636	631	665	631	635	645	645	596
Acoustics	10	9	6	11	10	18	9	7	11	12	7	11	13	11	11
Astronomy(1)	48	62	52	54	42	39	38	43	43	32	33	38	32	39	31
Astrophysics(1)	50	56	42	55	42	50	48	38	51	45	43	40	36	50	41
Atomic/molecular	97	84	74	59	54	44	45	61	40	53	39	40	43	51	40
Electron(2)	-	-	-	-	-	-	-	-	1	-	2	1	6	1	1
Electromagnetism(3)	8	7	6	8	4	-	-	-	-	-	-	-	-	-	-
Elementary particle	91	85	88	86	76	74	77	73	82	80	90	83	84	94	77
Fluids	16	15	11	8	9	8	8	7	11	7	9	2	8	9	9
Mechanics(4)	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Nuclear(5)	87	65	59	48	68	48	39	36	57	49	53	48	40	47	48
Optics	20	39	23	24	33	28	33	33	24	34	34	37	35	37	38
Plasma	33	55	49	47	38	44	46	47	46	52	35	40	41	41	31
Polymer(2)	-	-	-	-	-	-	-	-	5	4	5	6	9	8	2
Solid state	203	185	157	159	147	126	161	156	137	161	141	150	152	127	132
Thermal(7)	8	2	3	6	5	5	3	-	-	-	-	-	-	-	-
Physics, general	78	67	70	60	77	58	49	63	56	69	71	61	80	59	68
Physics, other	87	83	77	61	71	67	66	72	67	67	69	78	66	71	67
Chemistry	1281	1163	1116	1013	1078	1023	1102	1191	1248	1189	1219	1182	1243	1235	1161
Agricultural/food	3	7	5	3	6	-	-	-	-	-	-	-	-	-	-
Analytical	117	124	142	134	163	139	187	159	214	173	229	190	228	215	214
Inorganic	191	183	157	148	153	145	144	176	176	187	185	192	173	182	172
Nuclear	18	18	19	9	8	12	9	13	9	8	5	13	11	4	6
Organic	444	372	370	326	325	327	368	384	368	371	334	350	336	352	326
Pharmaceutical	45	31	30	25	27	24	35	34	46	35	36	34	39	41	42
Physical	297	254	238	208	236	206	202	250	228	236	221	201	197	196	185
Polymer	27	24	33	26	37	24	24	24	35	32	38	38	50	34	37
Theoretical	32	40	26	35	37	38	24	24	34	28	40	26	34	36	27
Chemistry, general	62	64	54	53	53	60	58	72	84	65	75	79	116	112	88
Chemistry, other	45	46	42	46	33	48	51	55	54	54	56	59	59	63	64
EARTH, ATMOS, & MARINE SCI	459	481	510	460	487	476	443	498	443	449	415	398	395	480	493
Applied geology(8)	13	15	15	11	15	21	15	15	5	6	5	3	2	6	4
Atmos/meteorol sci, gen(2) .	-	-	-	-	-	-	-	-	11	4	4	5	6	8	8
Atmos/meteorol sci, other ..	-	13	27	24	26	33	18	19	17	8	6	5	5	8	10
Atmospheric dynamics	-	9	25	15	14	12	21	15	9	13	13	9	8	15	8
Atmospheric phys/chem	-	12	14	17	12	15	12	15	16	7	14	14	15	9	8
Environmental sciences(9) ..	61	52	41	32	40	30	42	42	34	35	29	27	22	43	51
Geochemistry(10)	33	37	44	42	46	42	43	39	41	36	36	23	18	30	25
Geology(11)	-	-	-	-	-	-	-	-	75	94	73	91	78	102	122
Structural geology(11)	15	20	16	25	22	18	27	23	-	-	-	-	-	-	-
Geomorph/glacial geology ...	23	27	21	20	14	12	12	18	8	8	12	9	15	8	8
Geophysics/seismology(12) ..	-	26	49	38	58	43	49	51	49	42	54	51	35	44	51
Geophysics(12)	55	18	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrology/water res(13)	15	11	13	15	10	20	12	11	9	12	7	9	11	13	14
Marine sciences(2)	-	-	-	-	-	-	-	-	14	16	20	18	26	21	19
Marine sciences, other(14) .	-	-	8	26	28	21	27	32	-	-	-	-	-	-	-
Meteorology(15)	28	14	-	-	-	-	-	-	11	20	13	13	8	18	18
Minerology, petrology(10) ..	29	42	50	30	28	42	26	36	19	26	23	14	20	15	29
Oceanography	67	68	87	77	72	71	56	77	62	56	48	50	44	49	49
Paleontology	37	36	26	29	33	20	18	22	14	29	19	12	16	22	13
Stratigraphy, sediment	40	46	31	24	25	36	36	43	19	12	17	12	17	24	17
Geological sciences, gen(16)	-	-	-	-	-	-	-	-	6	5	8	6	12	4	9
Geological sciences, oth(16)	-	-	-	-	-	-	-	-	15	17	8	11	23	23	19
Earth sciences, general(16).	23	18	28	23	27	26	19	22	-	-	-	-	-	-	-
Earth sciences, other(16) ..	20	17	15	12	17	14	10	18	-	-	-	-	-	-	-
Physical sciences, other(2).	-	-	-	-	-	-	-	-	9	3	6	16	14	18	11
MATHEMATICS	776	682	628	547	486	469	429	419	374	366	337	326	295	308	351
Algebra	95	88	68	68	66	59	36	41	34	36	29	17	26	30	21
Analysis/funct analysis(17).	122	106	104	79	67	64	65	58	42	36	49	39	34	42	41
Applied mathematics	67	68	74	71	64	63	70	63	81	68	46	63	63	60	68
Computing theory	114	115	76	39	21	10	10	5	8	5	12	4	7	8	9
Geometry	19	13	16	14	20	26	22	19	22	16	18	19	11	18	23
Logic	32	25	12	16	17	17	17	13	16	13	19	15	8	9	5
Number theory	18	20	28	16	13	19	19	21	9	18	10	14	9	8	17
Operations research	34	25	22	28	24	21	15	18	9	13	13	10	5	16	10
Probability/math stat (18) .	119	98	106	107	100	80	90	94	76	89	67	71	53	57	77
Topology	71	50	50	40	46	46	39	37	30	26	23	20	26	12	20
Mathematics, general	46	41	39	41	27	35	28	29	22	29	26	33	31	30	32
Mathematics, other	39	33	33	28	21	29	18	21	25	17	25	21	22	18	28
COMPUTER/INFORMATION SCIENCES ..	-	-	21	74	148	138	154	134	161	155	170	176	215	253	295
Computer sciences	-	-	21	74	148	138	154	134	151	135	136	155	184	217	239
Information sci/systems(2) .	-	-	-	-	-	-	-	-	10	20	34	21	31	36	56

See footnotes at end of table.

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Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

Field of study	Year of doctorate														
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
U.S. CITIZENS															
WHITE															
AGRICULTURAL & BIOLOGICAL SCI ..	3234	3212	3141	3132	3283	3450	3515	3632	3560	3590	3514	3383	3238	3367	3376
Agricultural sciences	541	473	451	474	497	525	543	611	600	593	646	543	541	493	560
Agric business & mgmt (19) .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Agronomy	71	69	62	72	66	75	104	91	74	66	89	82	80	61	73
Animal breeding/genetics(20)	17	14	16	17	20	18	13	19	16	17	17	13	11	13	11
Animal nutrition(21)	-	-	-	-	-	-	-	-	41	46	50	45	59	33	47
Animal sci/nutrition(21) ...	77	80	65	54	63	75	76	89	-	-	-	-	-	-	-
Dairy science(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	8	8
Poultry science(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	4	4
Animal sciences, other(21) .	-	-	-	-	-	-	-	-	52	52	52	52	46	48	55
Fish/wildlife(22)	51	46	57	48	57	57	58	56	-	-	-	-	-	-	-
Fisheries science(22)	-	-	-	-	-	-	-	-	21	34	33	19	22	22	17
Wildlife management(22)	-	-	-	-	-	-	-	-	23	26	32	17	19	2	-
Wildlife/range mgmt(22)	-	-	-	-	-	-	-	-	-	-	-	-	-	26	41
Food sciences(23)	44	49	47	51	55	45	38	53	60	50	61	44	45	2	1
Food engineering(23)	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1
Food sciences, other(23) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	35	57
Forestry science(24)	60	56	46	53	58	60	63	55	60	78	75	53	66	14	-
Forest biology(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	17	16
Forest engineering(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-
Forest management(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	10	16
Wood science(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	4	5
Renewable natrl resrces(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	3	5
Forestry&relatd sci, oth(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	13	25
Horticulture science	49	26	33	35	44	40	38	61	39	48	41	35	40	28	45
Plant breeding/genetics(25).	-	-	-	-	-	-	-	-	50	53	55	41	46	45	37
Plant pathology(25)	-	-	-	-	-	-	-	-	64	28	57	46	43	24	27
Phytopathology(25)	65	50	53	53	56	71	65	85	-	-	-	-	-	-	-
Plant protectn-pest mgmt(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	4
Plant sciences, other(25) ..	-	-	-	-	-	-	-	-	9	11	11	15	6	11	6
Soil sciences(26)	55	30	27	53	27	36	38	48	47	47	47	53	34	10	-
Soil chem/microbio(26)	-	-	-	-	-	-	-	-	-	-	-	-	-	22	17
Soil sciences, other(26) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	19	33
Agriculture, general	1	4	-	1	1	2	1	1	3	1	1	2	1	-	2
Agriculture, other	51	49	45	37	50	46	49	53	41	36	25	26	23	14	6
Biological sciences	2693	2739	2690	2658	2786	2925	2972	3021	2960	2997	2868	2840	2697	2874	2816
Anatomy	98	114	92	123	123	123	136	130	87	83	109	70	70	69	58
Biochemistry	461	453	465	438	448	510	501	509	510	463	431	412	384	400	437
Biometrics/biostat	31	30	36	30	32	31	36	46	30	30	24	20	22	27	26
Biophysics	75	87	93	76	90	71	76	62	61	64	54	49	52	62	52
Botany, other(27)	-	-	-	-	-	-	-	-	100	100	88	94	78	83	84
Botany(27)	129	146	133	112	110	114	115	117	-	-	-	-	-	-	-
Cell biology(28)	-	-	-	-	-	-	-	-	97	97	79	98	107	89	101
Cytology(28)	30	35	31	28	28	31	38	33	-	-	-	-	-	-	-
Ecology	125	124	141	156	148	142	169	154	157	181	170	150	127	122	124
Embryology	23	9	18	14	8	14	15	8	11	10	14	9	3	5	9
Endocrinology(2)	-	-	-	-	-	-	-	-	21	20	12	10	14	13	12
Entomology	122	108	105	107	111	109	94	113	101	102	128	122	83	96	100
Human/animal genetics(29) ..	-	-	-	-	-	-	-	-	82	64	77	75	85	82	75
Plant genetics(29)	-	-	-	-	-	-	-	-	10	17	20	16	22	13	9
Genetics(29)	111	91	110	97	109	116	127	143	-	-	-	-	-	-	-
Human/animal pathology(30) .	-	-	-	-	-	-	-	-	63	65	88	65	84	81	72
Plant pathology(30)	-	-	-	-	-	-	-	-	22	21	24	18	20	22	18
Pathology(30)	43	70	68	76	65	79	77	76	-	-	-	-	-	-	-
Human/animal pharmacol	132	158	160	161	175	201	226	220	183	181	177	183	166	188	169
Human/animal physiol(31) ...	-	-	-	-	-	-	-	-	202	189	186	186	179	163	197
Animal physiology(31)	273	242	257	243	261	278	277	250	-	-	-	-	-	-	-
Plant physiology(31)	45	44	25	28	38	38	48	43	48	52	43	40	39	44	32
Hydrobiology	7	13	14	3	8	-	-	-	-	-	-	-	-	-	-
Immunology	56	66	80	73	107	92	123	116	121	106	93	111	101	139	115
Microbiology(32)	-	-	-	-	-	-	-	-	244	268	215	235	209	248	227
Bacteriology(32)	-	-	-	-	-	-	-	-	7	9	13	7	10	5	10
Microbiology/bacteriol(32) .	284	278	244	251	266	280	267	238	-	-	-	-	-	-	-
Molecular biology	125	121	101	130	105	137	152	174	182	234	218	230	210	256	276
Neurosciences	-	-	-	-	-	-	-	102	109	119	131	100	120	123	136
Nutritional sciences(33) ...	-	52	43	49	70	65	59	77	75	73	72	79	91	72	73
Parasitology	13	17	13	9	11	16	12	9	7	23	14	19	12	11	12
Toxicology(2)	-	-	-	-	-	-	-	-	51	85	83	93	93	83	92
Zoology, other(34)	-	-	-	-	-	-	-	-	167	135	115	125	106	128	103
Zoology(34)	233	222	217	201	206	197	167	164	-	-	-	-	-	-	-
Biological sci, general	130	123	128	123	132	151	136	136	125	118	126	131	134	151	127
Biological sci, other	147	136	116	130	135	130	121	101	87	88	64	93	76	99	70

See footnotes at end of table.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

	Year of doctorate														
Field of study	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
U.S. CITIZENS															
WHITE															
SOCIAL SCIENCES	2594	2566	2337	2202	2069	2078	1997	1902	1943	1793	1724	1778	1645	1648	1584
Agricultural economics	88	85	74	79	60	85	79	87	74	66	72	73	62	73	73
Anthropology	310	331	306	301	280	293	281	262	299	252	253	286	247	234	225
Area studies	20	17	14	14	20	16	10	13	12	11	9	7	10	10	8
Criminology(35)	-	-	-	-	-	26	31	30	36	29	26	21	18	22	23
Demography(2)	-	-	-	-	-	-	-	-	13	8	9	7	10	6	12
Econometrics	13	16	12	12	13	12	7	11	9	11	14	9	9	6	6
Economics	577	548	506	463	444	430	453	385	452	389	382	422	368	375	376
Geography	141	117	102	106	93	86	70	64	76	71	72	70	68	80	57
History of science(36)	23	22	27	21	19	19	19	24	12	19	16	14	21	21	14
International relations	80	79	66	53	55	42	54	34	43	45	44	38	44	39	43
Linguistics	128	102	112	99	83	105	104	104	88	78	90	91	94	70	82
Pol sci/government(37)	-	-	-	-	-	-	-	-	259	257	230	239	231	205	232
Political science(37)	1	470	434	437	358	374	295	302	-	-	-	-	-	-	-
Pol sci, public admin(37)	556	24	-	-	-	-	-	-	-	-	-	-	-	-	-
Public policy studies(2)	-	-	-	-	-	-	-	-	48	39	54	55	51	48	56
Sociology	494	547	540	441	450	436	432	402	369	364	317	315	271	274	228
Statistics	18	18	15	19	8	17	16	14	16	13	15	19	13	16	17
Urban studies(38)	41	61	41	46	51	42	42	48	30	45	33	21	30	39	24
Social sciences, general	26	27	16	17	22	22	14	23	11	7	7	18	15	9	11
Social sciences, other	78	102	72	94	113	73	90	99	96	89	81	73	83	121	97
PSYCHOLOGY	2327	2511	2513	2492	2522	2533	2819	2607	2740	2652	2552	2509	2476	2403	2346
Clinical	731	805	832	873	865	921	1088	1005	1032	1003	993	941	952	856	883
Cognitive(2)	-	-	-	-	-	-	-	-	55	63	69	60	65	62	65
Comparative(39)	18	23	20	19	17	7	10	10	9	12	11	13	9	6	5
Counseling(40)	200	240	234	239	270	260	301	300	377	401	378	393	415	419	429
Developmental(41)	162	172	181	186	193	173	186	163	190	176	150	161	167	154	128
Educational	114	107	118	115	130	107	157	116	123	171	105	89	72	82	75
Experimental(39)	312	320	296	265	254	266	256	213	176	153	147	126	131	112	124
Indust/organizational(42)	52	61	70	65	78	56	74	77	81	93	92	98	94	104	88
Physiological(39)	109	114	116	102	94	91	90	80	80	62	65	64	55	69	55
Quantitative(2)	-	-	-	-	-	-	-	-	13	16	12	20	11	11	6
Personality	52	52	56	31	31	35	43	30	29	22	17	14	21	14	21
Psychometrics	13	21	15	11	19	18	24	8	10	6	7	11	8	7	5
School	93	130	134	110	112	165	120	151	111	74	79	100	83	100	86
Social	185	165	173	169	180	164	149	143	147	126	135	106	104	119	96
Psychology, general	142	148	154	186	118	119	164	146	175	143	146	166	159	190	170
Psychology, other	144	153	114	121	161	151	157	165	132	131	146	147	130	98	110
TOTAL, ENGINEERING	1554	1421	1305	1074	1086	1068	1009	1015	1016	1062	1097	1229	1330	1529	1574
Aeronaut/astronautical(43)	88	78	54	41	25	30	44	31	35	43	48	38	55	59	66
Agricultural	34	21	16	20	19	22	16	20	18	23	21	24	34	37	46
Bioengineering/biomed(44)	59	59	53	50	50	45	43	44	47	40	42	42	44	65	69
Ceramic	14	12	18	19	13	12	11	11	13	14	11	14	24	12	15
Chemical	171	137	136	112	123	110	118	113	140	143	181	195	243	293	305
Civil	114	109	99	78	83	81	88	98	104	114	99	108	125	143	143
Communications(2)	-	-	-	-	-	-	-	-	10	5	10	9	3	7	10
Computer	55	55	68	31	29	26	26	18	27	23	11	24	19	21	32
Electrical/electronics(45)	-	-	-	-	-	-	-	-	161	212	209	260	234	295	315
Electrical(45)	278	264	219	174	201	188	164	165	26	2	1	-	-	-	-
Electronics(45)	42	43	41	22	30	35	39	36	8	-	-	-	-	-	-
Engineering mechanics	76	54	49	36	31	35	32	45	23	35	26	33	36	30	29
Engineering physics(46)	10	17	15	12	10	11	11	11	6	6	6	8	13	5	9
Engineering science(2)	-	-	-	-	-	-	-	-	14	8	13	15	11	15	9
Environmental health eng(47)	44	40	45	38	44	50	45	34	27	31	16	16	15	19	20
Fuel tech/petro eng(8)	1	1	1	-	1	-	-	-	-	-	-	-	-	-	-
Industrial	60	35	35	30	40	32	30	34	25	25	28	30	39	30	41
Materials science	70	49	55	67	51	61	45	57	61	60	79	73	97	105	98
Mechanical	166	167	140	132	127	113	101	132	105	100	134	148	166	195	188
Metallurgical(48)	57	47	46	37	40	47	26	31	29	26	37	22	30	34	33
Mining/mineral(49)	3	1	1	3	2	1	4	4	7	3	6	7	10	5	10
Naval arch/marine engin(2)	-	-	-	-	-	-	-	-	-	2	2	3	4	1	1
Nuclear(46)	55	76	61	56	51	50	52	49	29	52	33	34	26	51	28
Ocean(2)	-	-	-	-	-	-	-	-	2	4	3	8	4	5	6
Operations research	39	51	43	40	35	36	37	21	19	28	20	26	22	22	26
Petroleum(50)	5	5	5	1	3	6	3	5	2	6	5	5	5	8	7
Polymer(2)	-	-	-	-	-	-	-	-	7	7	13	16	4	8	15
Systems(51)	47	41	39	29	38	32	28	19	23	17	16	13	17	17	12
Engineering, general	17	15	20	13	14	17	11	8	7	5	3	17	20	17	14
Engineering, other	49	45	46	33	26	28	35	29	41	28	24	41	30	30	27
TOTAL, NON-SCI/ENGINEERING(52)	11289	11520	10777	10131	10085	10149	9890	9646	9584	9429	9102	9012	8977	8902	8912
TOTAL, ALL FIELDS	24352	24373	23065	21811	21920	21993	21980	21680	21700	21350	20761	20628	20459	20770	20688

See footnotes at end of table.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89—continued

Field of study	Year of doctorate														
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
U.S. CITIZENS OTHER/UNKNOWN RACE															
TOTAL, SCIENCE/ENGINEERING	629	593	621	883	877	767	618	382	395	361	351	274	303	262	265
TOTAL, SCIENCES	554	542	550	789	773	685	566	335	351	316	295	245	254	218	221
PHYSICAL SCIENCES	116	105	135	170	174	162	140	63	70	70	65	62	54	61	46
Physics/astronomy	50	64	73	85	86	80	67	29	35	24	31	22	22	32	22
Acoustics	1	-	2	1	-	-	1	-	-	-	-	1	-	-	-
Astronomy(1)	1	4	7	8	5	3	5	1	2	-	3	3	-	3	2
Astrophysics(1)	3	2	3	4	5	6	2	4	4	2	2	1	1	-	-
Atomic/molecular	1	7	4	6	5	12	4	-	2	2	1	2	2	1	1
Electromagnetism(3)	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-
Elementary particle	2	5	3	12	11	7	11	3	5	-	1	2	4	4	1
Fluids	-	-	-	-	1	2	-	-	1	1	1	-	2	-	-
Nuclear(5)	2	-	7	8	6	4	7	-	3	2	5	1	1	3	2
Optics	2	1	1	-	1	-	3	-	-	1	-	-	-	1	3
Plasma	3	4	4	6	4	2	4	2	2	1	1	3	-	2	1
Polymer(2)	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1
Solid state	11	12	14	13	17	13	10	4	5	4	5	2	3	6	5
Thermal(7)	-	1	-	1	1	-	-	-	-	-	-	-	-	-	-
Physics, general	16	19	23	19	22	27	13	10	10	9	8	6	5	10	5
Physics, other	8	8	4	7	8	4	7	5	1	2	4	1	3	2	1
Chemistry	66	41	62	85	88	82	73	34	35	46	34	40	32	29	24
Agricultural/food	-	1	-	-	2	-	-	-	-	-	-	-	-	-	-
Analytical	3	3	5	9	9	9	9	1	3	4	3	3	2	-	5
Inorganic	5	4	5	13	11	5	8	6	6	7	5	8	3	3	3
Nuclear	2	-	1	1	3	-	1	-	1	1	-	2	-	-	-
Organic	17	12	14	22	24	18	11	14	7	8	5	13	9	11	6
Pharmaceutical	1	1	1	1	2	2	2	-	-	3	1	1	-	1	1
Physical	13	7	13	15	14	13	14	4	3	10	9	4	8	7	1
Polymer	-	-	1	2	3	5	-	-	-	-	-	2	3	1	-
Theoretical	1	1	1	1	-	2	-	-	1	1	1	1	-	-	1
Chemistry, general	23	11	18	19	12	25	26	7	11	11	8	6	4	4	7
Chemistry, other	1	1	3	2	8	3	2	2	3	1	2	-	3	2	-
EARTH, ATMOS, & MARINE SCI	25	24	27	39	31	23	16	10	20	14	12	11	17	11	8
Applied geology(8)	1	1	1	2	1	1	-	-	-	-	1	-	-	-	-
Atmos/meteorol sci, gen(2) .	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-
Atmos/meteorol sci, other ..	-	-	2	1	2	1	-	1	1	-	-	-	2	-	1
Atmospheric dynamics	-	1	-	2	2	-	-	-	-	-	-	-	-	-	-
Atmospheric phys/chem	-	1	-	-	-	1	-	1	-	1	-	-	-	-	-
Environmental sciences(9) ..	2	1	3	3	2	2	-	-	-	1	-	-	-	1	-
Geochemistry(10)	3	2	3	3	2	-	1	-	2	-	1	2	2	2	-
Geology(11)	-	-	-	-	-	-	-	-	5	3	4	3	2	2	1
Structural geology(11)	-	1	2	1	-	1	-	-	-	-	-	-	-	-	-
Geomorph/glacial geology ...	2	1	-	1	-	-	-	-	-	-	-	-	-	-	-
Geophysics/seismology(12) ..	-	3	-	1	6	1	3	1	1	3	1	-	1	2	2
Geophysics(12)	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrology/water res(13)	-	-	1	2	4	1	-	1	-	-	-	1	-	-	-
Marine sciences(2)	-	-	-	-	-	-	-	-	-	1	-	1	4	-	-
Marine sciences, other(14) .	-	-	1	1	1	1	-	-	-	-	-	-	-	-	-
Meteorology(15)	2	-	-	-	-	-	-	-	-	1	-	-	1	1	-
Minerology, petrology(10) ..	1	2	2	4	2	2	1	1	1	1	1	-	-	-	1
Oceanography	4	5	5	6	3	1	4	1	1	-	2	2	1	1	2
Paleontology	1	3	-	-	1	-	1	1	2	2	-	-	-	-	-
Stratigraphy, sediment	1	1	1	3	2	2	-	-	1	-	-	-	2	1	1
Geological sciences, gen(16)	-	-	-	-	-	-	-	-	2	1	-	1	1	-	-
Geological sciences, oth(16)	-	-	-	-	-	-	-	-	2	-	-	-	-	1	-
Earth sciences, general(16).	-	1	3	7	2	8	5	1	-	-	-	-	-	-	-
Earth sciences, other(16) ..	4	1	3	2	1	1	1	2	-	-	-	-	-	-	-
Physical sciences, other(2).	-	-	-	-	-	-	-	-	1	-	1	1	1	-	-
MATHEMATICS	40	37	30	39	31	25	21	15	17	15	15	11	13	10	15
Algebra	-	1	1	2	3	3	1	1	1	1	2	3	2	-	3
Analysis/funct analysis(17).	5	1	3	5	7	2	1	3	2	1	2	1	2	2	2
Applied mathematics	6	3	4	3	3	6	4	4	1	2	1	4	-	1	4
Computing theory	2	5	5	5	-	-	-	-	1	2	1	-	-	-	-
Geometry	-	2	1	4	1	-	1	-	-	-	1	1	-	1	1
Logic	2	1	1	1	1	3	-	-	1	-	1	-	-	1	1
Number theory	1	-	-	-	1	1	1	2	1	1	1	-	-	-	-
Operations research	2	1	1	-	2	1	-	-	-	1	-	1	1	1	2
Probability/math stat (18) .	3	4	1	4	4	3	3	2	3	3	-	1	1	3	1
Topology	5	3	3	5	2	1	4	2	1	2	-	-	2	1	-
Mathematics, general	13	14	9	10	6	4	5	-	5	1	4	-	5	-	1
Mathematics, other	1	2	1	-	1	1	1	1	1	1	2	-	-	-	-
COMPUTER/INFORMATION SCIENCES ..	-	-	3	9	9	15	8	4	9	6	10	10	9	7	17
Computer sciences	-	-	3	9	9	15	8	4	8	4	7	8	9	6	15
Information sci/systems(2) .	-	-	-	-	-	-	-	-	1	2	3	2	-	1	2

See footnotes at end of table.

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Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

Field of study	Year of doctorate 1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
U.S. CITIZENS															
OTHER/UNKNOWN RACE															
AGRICULTURAL & BIOLOGICAL SCI ..	110	135	124	214	221	221	177	120	88	101	77	61	76	59	73
Agricultural sciences	11	11	13	27	30	25	25	14	19	10	10	10	5	10	19
Agronomy	-	3	3	5	7	5	2	4	3	1	-	1	1	2	5
Animal breeding/genetics(20)	-	-	1	-	-	1	1	-	-	1	-	1	-	-	-
Animal nutrition(21)	-	-	-	-	-	-	-	-	-	-	1	1	1	-	1
Animal sci/nutrition(21) ...	4	2	2	3	8	6	3	4	-	-	-	-	-	-	-
Poultry science(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Animal sciences, other(21) .	-	-	-	-	-	-	-	-	1	1	5	-	-	3	1
Fish/wildlife(22)	1	3	1	1	3	1	3	1	-	-	-	-	-	-	-
Fisheries science(22)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Wildlife management(22)	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Food sciences(23)	2	1	1	4	2	3	3	-	7	1	-	1	1	-	-
Food sciences, other(23) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
Forestry science(24)	1	-	2	7	3	1	1	2	2	2	2	2	-	-	-
Forest biology(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Renewable natrl resrces(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Forestry&relatd sci, oth(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Horticulture science	-	-	2	2	2	1	2	1	2	-	-	1	-	-	-
Plant breeding/genetics(25).	-	-	-	-	-	-	-	-	1	1	-	1	-	1	1
Plant pathology(25)	-	-	-	-	-	-	-	-	1	1	1	1	1	-	1
Phytopathology(25)	-	-	-	4	1	3	2	1	-	-	-	-	-	-	-
Plant sciences, other(25) ..	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Soil sciences(26)	2	-	1	-	3	3	3	-	1	1	-	1	-	-	-
Soil chem/microbio(26)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Soil sciences, other(26) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Agriculture, general	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Agriculture, other	1	2	-	-	1	1	5	1	-	-	1	-	1	1	-
Biological sciences	99	124	111	187	191	196	152	106	69	91	67	51	71	49	54
Anatomy	3	7	4	5	8	5	3	5	4	1	1	-	3	1	-
Biochemistry	18	18	18	24	27	43	23	14	2	11	9	8	8	4	9
Biometrics/biostat	1	1	-	3	2	-	2	-	-	1	2	1	1	-	1
Biophysics	6	3	7	8	12	8	3	4	2	5	-	3	1	3	2
Botany, other(27)	-	-	-	-	-	-	-	-	1	5	2	1	-	-	1
Botany(27)	4	5	5	4	7	5	6	3	-	-	-	-	-	-	-
Cell biology(28)	-	-	-	-	-	-	-	-	3	3	2	2	-	2	2
Cytology(28)	-	4	1	1	5	4	2	-	-	-	-	-	-	-	-
Ecology	-	4	6	1	12	8	8	5	3	4	1	1	3	-	2
Embryology	2	-	-	-	2	1	-	-	-	-	-	-	1	-	-
Endocrinology(2)	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-
Entomology	6	3	6	1	3	6	5	5	1	5	2	2	1	-	-
Human/animal genetics(29) ..	-	-	-	-	-	-	-	-	1	1	5	2	2	2	1
Plant genetics(29)	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1
Genetics(29)	1	4	4	6	3	3	5	4	-	-	-	-	-	-	-
Human/animal pathology(30) .	-	-	-	-	-	-	-	-	4	1	-	1	3	1	2
Plant pathology(30)	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-
Pathology(30)	2	5	5	5	4	6	4	-	-	-	-	-	-	-	-
Human/animal pharmacol	2	10	4	19	14	14	11	13	1	4	7	5	6	4	3
Human/animal physiol(31) ...	-	-	-	-	-	-	-	-	7	6	3	4	7	5	6
Animal physiology(31)	7	6	9	19	10	28	11	6	-	-	-	-	-	-	-
Plant physiology(31)	1	2	2	3	1	2	4	-	1	3	1	-	3	-	2
Hydrobiology	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Immunology	3	3	2	3	8	9	3	4	4	2	5	1	4	2	1
Microbiology(32)	-	-	-	-	-	-	-	-	2	7	1	3	5	5	2
Microbiology/bacteriol(32) .	4	8	12	22	21	16	16	13	-	-	-	-	-	-	-
Molecular biology	2	4	5	13	9	12	10	2	9	2	4	4	10	3	6
Neurosciences	-	-	-	-	-	-	-	3	5	3	1	4	3	4	3
Nutritional sciences(33) ...	-	1	1	7	4	2	8	1	1	4	5	2	-	-	1
Parasitology	-	-	-	-	1	-	1	-	-	1	-	-	-	-	-
Toxicology(2)	-	-	-	-	-	-	-	-	-	3	-	-	1	3	2
Zoology, other(34)	-	-	-	-	-	-	-	-	1	4	1	1	3	3	1
Zoology(34)	10	10	7	7	19	8	5	4	-	-	-	-	-	-	-
Biological sci, general	14	22	11	26	11	8	16	13	7	6	13	5	5	6	5
Biological sci, other	12	4	2	10	7	8	6	7	5	9	1	1	1	1	1

See footnotes at end of table.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

Field of study	Year of doctorate														
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
U.S. CITIZENS															
OTHER/UNKNOWN RACE															
SOCIAL SCIENCES	162	159	131	166	172	125	124	76	81	61	72	57	48	39	33
Agricultural economics	2	5	2	2	6	6	5	4	3	3	4	2	1	2	3
Anthropology	26	23	21	27	34	21	24	10	10	10	16	8	12	9	9
Area studies	4	1	2	-	-	1	1	1	1	2	1	-	-	-	1
Criminology(35)	-	-	-	-	-	-	-	1	1	1	-	-	-	1	1
Demography(2)	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Econometrics	-	3	2	1	1	1	-	-	-	-	-	-	-	-	-
Economics	32	36	25	35	48	29	34	15	13	11	17	14	11	6	9
Geography	5	3	8	9	5	6	6	3	5	-	1	1	2	3	1
History of science(36)	2	4	1	-	6	2	3	1	-	1	1	-	-	-	-
International relations	5	5	5	4	-	3	3	3	3	4	4	2	1	-	-
Linguistics	13	6	6	11	5	6	4	6	4	4	4	2	3	1	1
Pol sci/government(37)	-	-	-	-	-	-	-	-	18	17	16	8	7	8	4
Political science(37)	-	25	26	36	25	22	19	16	-	-	-	-	-	-	-
Pol sci, public admin(37)	35	5	-	-	-	-	-	-	-	-	-	-	-	-	-
Public policy studies(2)	-	-	-	-	-	-	-	-	1	1	-	1	2	2	-
Sociology	24	28	26	29	29	20	17	12	11	3	5	12	7	3	4
Statistics	-	2	1	1	1	-	1	-	1	-	-	-	-	-	-
Urban studies(38)	4	1	1	2	2	4	2	1	5	1	1	3	2	1	-
Social sciences, general	2	1	-	4	2	1	-	-	-	-	1	1	-	-	-
Social sciences, other	8	11	5	5	8	3	5	3	5	3	-	3	-	3	-
PSYCHOLOGY	101	82	100	152	135	114	80	47	66	49	44	33	37	31	29
Clinical	10	18	14	27	43	31	29	12	25	14	16	11	11	9	10
Cognitive(2)	-	-	-	-	-	-	-	-	1	-	-	2	1	4	1
Comparative(39)	2	1	-	-	2	1	-	-	1	-	-	-	-	-	-
Counseling(40)	6	1	10	13	12	10	3	3	6	4	4	1	6	5	4
Developmental(41)	3	1	6	8	9	8	5	-	2	3	1	-	5	-	-
Educational	5	3	1	7	8	6	5	4	6	3	1	1	1	1	-
Experimental(39)	8	11	13	10	14	12	3	1	4	1	1	2	1	-	1
Indust/organizational(42)	2	-	1	1	2	3	3	-	1	-	2	-	2	2	3
Physiological(39)	1	4	5	5	-	3	1	-	-	2	1	4	2	2	-
Personality	5	1	2	4	4	4	1	3	-	-	1	-	-	-	-
Psychometrics	1	1	-	1	1	-	-	-	-	-	1	-	-	-	-
School	3	2	1	6	1	2	4	1	1	1	2	1	-	-	2
Social	6	7	6	11	4	2	3	1	2	4	-	1	-	2	4
Psychology, general	43	30	36	50	25	26	22	17	15	11	12	9	6	3	4
Psychology, other	6	2	5	9	10	6	1	5	2	6	2	1	2	3	-
TOTAL, ENGINEERING	75	51	71	94	104	82	52	47	44	45	56	29	49	44	44
Aeronaut/astronautical(43)	5	4	1	1	4	2	4	1	3	1	1	-	1	-	1
Agricultural	-	-	-	-	2	3	1	-	-	2	-	-	-	2	2
Bioengineering/biomed(44)	4	1	4	5	2	7	4	2	4	2	2	1	1	4	-
Ceramic	1	-	-	-	2	1	-	-	-	-	1	-	1	-	-
Chemical	9	7	12	7	8	8	4	7	6	8	13	2	6	7	7
Civil	7	3	4	3	5	5	3	3	3	1	2	2	5	7	3
Communications(2)	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-
Computer	4	5	2	2	3	-	-	2	-	-	-	-	3	1	1
Electrical/electronics(45)	-	-	-	-	-	-	-	-	8	11	16	4	13	11	13
Electrical(45)	15	11	17	23	25	19	13	10	-	-	-	-	-	-	-
Electronics(45)	3	2	2	7	2	4	1	3	-	-	-	-	-	-	-
Engineering mechanics	2	2	1	4	7	2	3	-	-	1	2	3	-	-	3
Engineering physics(46)	1	-	1	-	-	1	-	-	1	-	-	-	-	-	-
Engineering science(2)	-	-	-	-	-	-	-	-	1	1	-	1	-	-	1
Environmental health eng(47)	1	1	2	3	5	1	1	-	-	-	-	-	-	-	-
Industrial	-	1	2	3	4	2	2	-	1	-	-	-	2	1	-
Materials science	3	2	5	3	5	4	4	1	-	8	3	3	1	3	2
Mechanical	7	3	3	8	13	5	4	8	4	3	6	7	6	3	5
Metallurgical(48)	3	5	5	9	2	4	-	3	2	1	1	-	4	2	1
Mining/mineral(49)	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-
Nuclear(46)	2	-	2	4	3	3	4	2	2	2	1	-	1	-	-
Ocean(2)	-	-	-	-	-	-	-	-	-	-	-	1	1	1	-
Operations research	4	1	1	5	1	2	1	-	-	-	1	1	-	-	1
Petroleum(50)	-	-	-	-	1	1	-	1	1	-	-	-	-	1	-
Polymer(2)	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Systems(51)	1	-	-	-	3	-	2	-	-	-	2	-	-	-	2
Engineering, general	2	1	1	5	-	5	-	2	2	1	-	2	1	-	-
Engineering, other	1	2	6	2	7	3	1	1	4	2	5	1	3	1	2
TOTAL, NON-SCI/ENGINEERING(52)	476	494	490	641	640	484	436	218	230	241	171	156	175	125	122
TOTAL, ALL FIELDS	1105	1087	1111	1524	1517	1251	1054	600	625	602	522	430	478	387	387

See footnotes at end of table.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

	Year of doctorate														
Field of study	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
U.S. CITIZENS AND NON-U.S. PERMANENT RESIDENTS															
NATIVE AMERICAN															
TOTAL, SCIENCE/ENGINEERING	13	10	30	22	28	27	26	38	28	31	41	52	52	41	52
TOTAL, SCIENCES	12	10	29	20	25	24	22	35	27	28	40	46	45	37	45
PHYSICAL SCIENCES	-	-	6	4	1	3	1	3	6	4	3	5	7	6	10
Physics/astronomy	-	-	4	1	-	-	-	3	3	1	1	-	1	1	5
Astrophysics(1)	-	-	-	-	-	-	-	1	1	-	-	-	-	-	2
Atomic/molecular	-	-	1	-	-	-	-	-	-	-	1	-	-	-	1
Elementary particle	-	-	-	-	-	-	-	1	1	1	-	-	-	-	1
Plasma	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Solid state	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-
Physics, general	-	-	2	-	-	-	-	-	-	-	-	-	1	1	1
Physics, other	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Chemistry	-	-	2	3	1	3	1	-	3	3	2	5	6	5	5
Analytical	-	-	-	1	-	1	1	-	1	1	1	1	-	-	-
Inorganic	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-
Organic	-	-	1	2	1	1	-	-	-	1	-	1	2	1	2
Pharmaceutical	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-
Physical	-	-	-	-	-	-	-	-	-	-	-	1	1	1	-
Theoretical	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Chemistry, general	-	-	1	-	-	1	-	-	-	-	-	2	1	1	2
Chemistry, other	-	-	-	-	-	-	-	-	-	1	1	-	1	-	1
EARTH, ATMOS, & MARINE SCI	-	-	-	-	2	2	-	-	2	-	1	2	-	2	6
Atmospheric dynamics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Environmental sciences(9) ..	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Geochemistry(10)	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1
Geology(11)	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-
Geophysics/seismology(12) ..	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Marine sciences(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Minerology, petrology(10) ..	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-
Oceanography	-	-	-	-	-	-	-	-	1	-	-	-	-	1	1
Paleontology	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Stratigraphy, sediment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Earth sciences, general(16).	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
MATHEMATICS	3	-	1	1	-	-	1	1	-	3	-	1	-	2	-
Algebra	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Analysis/funct analysis(17).	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Applied mathematics	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-
Geometry	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Probability/math stat (18) .	1	-	1	-	-	-	-	-	-	1	-	-	-	-	-
Mathematics, general	-	-	-	1	-	-	1	-	-	1	-	-	-	2	-
COMPUTER/INFORMATION SCIENCES ..	-	-	-	-	1	-	-	1	1	-	-	-	3	1	2
Computer sciences	-	-	-	-	1	-	-	1	-	-	-	-	2	-	2
Information sci/systems(2) .	-	-	-	-	-	-	-	-	1	-	-	-	1	1	-
AGRICULTURAL & BIOLOGICAL SCI ..	1	3	8	7	3	6	7	10	5	11	17	17	13	12	9
Agricultural sciences	-	1	1	2	-	1	1	3	1	1	4	-	2	6	2
Agronomy	-	-	-	1	-	-	-	-	-	-	1	-	-	1	-
Animal breeding/genetics(20)	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Animal sci/nutrition(21) ...	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-
Fisheries science(22)	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-
Wildlife/range mgmt(22)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Food sciences(23)	-	-	-	1	-	1	-	-	-	-	1	-	-	-	-
Food sciences, other(23) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Forestry science(24)	-	-	1	-	-	-	-	1	1	-	2	-	1	-	-
Forestry&relatd sci, oth(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Plant breeding/genetics(25).	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Plant pathology(25)	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Soil sciences(26)	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Soil sciences, other(26) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Agriculture, other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Biological sciences	1	2	7	5	3	5	6	7	4	10	13	17	11	6	7
Anatomy	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-
Biochemistry	-	-	-	-	1	1	1	-	-	1	2	2	-	-	1
Biometrics/biostat	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Biophysics	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Botany, other(27)	-	-	-	-	-	-	-	-	-	1	3	1	-	1	-
Botany(27)	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-
Cell biology(28)	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-
Ecology	-	-	-	-	-	-	-	-	-	-	1	-	2	-	-
Embryology	-	-	1	-	-	1	-	-	-	1	-	-	-	-	-
Entomology	-	-	-	-	1	-	1	1	-	-	-	1	-	-	-
Genetics(29)	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Human/animal pathology(30) .	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1
Pathology(30)	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Human/animal pharmacol	-	-	2	-	-	-	-	2	-	-	-	1	-	-	1
Human/animal physiol(31) ...	-	-	-	-	-	-	-	-	1	1	-	1	1	1	1
Animal physiology(31)	-	-	1	-	1	1	1	1	-	-	-	-	-	-	-
Plant physiology(31)	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Immunology	-	-	-	-	-	-	-	1	-	3	-	2	-	3	-
Microbiology(32)	-	-	-	-	-	-	-	-	-	-	1	1	1	-	-
Bacteriology(32)	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Microbiology/bacteriol(32) .	-	-	-	2	-	1	1	-	-	-	-	-	-	-	-
Molecular biology	-	-	2	-	-	-	-	-	-	1	3	-	2	-	-
Neurosciences	-	-	-	-	-	-	-	-	-	-	-	2	1	-	-
Nutritional sciences(33) ...	-	-	-	-	-	1	1	-	-	-	-	-	-	-	1
Toxicology(2)	-	-	-	-	-	-	-	-	-	-	1	2	1	-	-
Zoology, other(34)	-	-	-	-	-	-	-	-	1	-	-	-	-	1	1
Zoology(34)	-	-	1	1	-	-	-	1	-	-	-	-	-	-	-
Biological sci, general	-	-	-	1	-	-	-	-	1	1	-	3	1	-	1

See footnotes at end of table.

BEST COPY AVAILABLE

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

	Year of doctorate														
Field of study	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
U.S. CITIZENS AND NON-U.S. PERMANENT RESIDENTS															
NATIVE AMERICAN															
SOCIAL SCIENCES	3	3	5	5	8	7	4	4	4	4	9	12	6	7	7
Agricultural economics	-	-	1	-	-	-	1	-	-	-	-	-	-	1	-
Anthropology	-	-	-	-	2	-	1	-	2	2	3	2	1	2	1
Area studies	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Criminology(35)	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Demography(2)	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Economics	1	1	-	1	2	2	2	-	-	1	2	2	-	-	1
Geography	-	1	-	-	-	1	-	-	-	-	-	-	-	1	-
International relations	-	-	-	-	-	1	-	-	-	-	-	-	2	-	-
Linguistics	-	-	-	2	1	-	-	-	1	-	1	1	-	1	-
Pol sci/government(37)	-	-	-	-	-	-	-	-	1	-	1	-	-	-	1
Political science(37)	-	1	2	-	-	1	-	1	-	-	-	-	-	-	-
Sociology	1	-	1	1	3	2	-	2	-	1	-	4	2	2	1
Urban studies(38)	1	-	1	-	-	-	-	1	-	-	-	-	1	-	-
Social sciences, general ...	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Social sciences, other	-	-	-	1	-	-	-	-	-	-	1	2	-	-	1
PSYCHOLOGY	5	4	9	3	10	6	9	16	9	6	10	9	16	7	11
Clinical	1	-	3	2	5	2	4	6	4	2	2	7	5	4	2
Cognitive(2)	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Comparative(39)	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Counseling(40)	-	-	2	-	1	1	-	4	1	2	3	-	3	1	4
Developmental(41)	-	-	-	-	-	-	-	1	1	-	-	-	1	1	1
Educational	-	1	1	1	-	1	1	-	-	-	1	-	1	-	-
Experimental(39)	1	2	1	-	-	-	1	-	1	1	-	-	-	-	-
Indust/organizational(42) ..	-	-	-	-	1	-	1	-	-	-	1	1	-	-	-
Physiological(39)	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
School	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Social	-	-	-	-	1	-	-	2	-	-	-	-	-	-	1
Psychology, general	-	-	1	-	-	1	-	3	1	1	1	1	5	1	2
Psychology, other	1	1	1	-	1	1	2	-	1	-	1	-	1	-	-
TOTAL, ENGINEERING	1	-	1	2	3	3	4	3	1	3	1	6	7	4	7
Aeronaut/astronautical(43) .	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Agricultural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Bioengineering/biomed(44) ..	-	-	-	-	-	1	-	1	-	-	-	1	-	-	-
Chemical	-	-	-	1	-	-	-	-	-	2	-	-	1	2	1
Civil	-	-	1	-	1	-	1	-	-	1	-	-	-	1	1
Electrical/electronics(45) .	-	-	-	-	-	-	-	-	-	-	1	2	3	-	-
Electrical(45)	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Engineering science(2)	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Environmental health eng(47)	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Materials science	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Mechanical	-	-	-	-	1	1	2	-	-	-	-	2	1	1	-
Metallurgical(48)	-	-	-	-	-	1	1	-	-	-	-	-	-	-	1
Mining/mineral(49)	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Nuclear(46)	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Engineering, general	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Engineering, other	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
TOTAL, NON-SCI/ENGINEERING(52) ...	23	30	36	38	53	48	59	39	54	43	55	47	63	53	41
TOTAL, ALL FIELDS	36	40	66	60	81	75	85	77	82	74	96	99	115	94	93

See footnotes at end of table.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

Field of study	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
	Year of doctorate														
U.S. CITIZENS AND NON-U.S. PERMANENT RESIDENTS															
ASIAN															
TOTAL, SCIENCE/ENGINEERING	814	801	745	835	877	866	821	765	778	774	808	807	921	913	976
TOTAL, SCIENCES	539	522	496	563	571	588	536	519	531	524	527	545	594	580	618
PHYSICAL SCIENCES	171	181	160	179	168	164	149	131	136	144	150	146	143	137	154
Physics/astronomy	74	52	63	58	63	46	56	43	53	47	38	37	35	52	59
Acoustics	-	-	-	1	1	3	2	-	1	1	1	-	-	1	-
Astronomy(1)	1	1	2	-	3	3	-	3	-	-	-	3	-	2	2
Astrophysics(1)	3	4	3	3	-	2	1	1	1	-	2	3	1	3	-
Atomic/molecular	5	6	5	4	4	3	3	7	9	4	1	1	2	3	4
Electron(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Electromagnetism(3)	1	2	2	1	-	-	-	-	-	-	-	-	-	-	-
Elementary particle	4	3	7	5	7	7	4	3	4	6	7	3	5	7	3
Fluids	-	2	1	2	1	-	1	1	1	1	-	1	-	1	1
Nuclear(5)	8	3	6	2	5	3	1	2	3	3	2	3	4	3	4
Optics	2	2	2	2	1	4	4	-	3	2	2	1	-	7	5
Plasma	5	4	7	2	5	1	4	4	4	4	2	2	3	3	2
Polymer(2)	-	-	-	-	-	-	-	-	1	-	3	1	-	1	1
Solid state	31	14	13	18	20	11	16	10	13	16	10	9	6	7	24
Thermal(7)	-	-	2	-	-	-	1	-	-	-	-	-	-	-	-
Physics, general	8	8	8	12	12	5	15	6	6	6	6	7	8	8	8
Physics, other	6	3	5	6	4	4	4	6	7	4	2	3	6	5	5
Chemistry	97	129	97	121	105	118	93	88	83	97	112	109	108	85	95
Agricultural/food	1	2	-	1	1	-	-	-	-	-	-	-	-	-	-
Analytical	2	4	10	12	9	12	8	6	11	6	9	8	11	15	7
Inorganic	9	16	5	10	10	13	7	6	5	5	13	7	9	5	12
Nuclear	-	2	1	3	1	-	-	1	-	2	-	-	1	1	-
Organic	31	38	29	30	32	41	31	19	19	32	38	37	26	15	29
Pharmaceutical	8	10	7	13	7	10	3	7	8	8	10	10	5	5	4
Physical	25	32	24	25	21	19	13	25	15	15	10	17	20	14	22
Polymer	5	9	4	12	4	13	15	6	7	12	18	10	10	12	9
Theoretical	4	-	1	1	2	-	1	-	2	-	2	3	4	-	-
Chemistry, general	8	12	9	10	13	6	6	7	13	10	9	8	18	12	11
Chemistry, other	4	4	7	4	5	4	9	11	3	7	3	9	4	6	1
EARTH, ATMOS, & MARINE SCI	18	21	21	25	21	22	14	27	26	19	21	14	18	15	23
Applied geology(8)	-	1	-	-	1	-	-	-	1	-	-	-	-	-	-
Atmos/meteorol sci, gen(2) .	-	-	-	-	-	-	-	-	1	-	1	1	-	1	-
Atmos/meteorol sci, other ..	-	3	2	4	1	2	3	3	2	-	-	-	-	1	1
Atmospheric dynamics	-	1	1	2	4	1	2	1	2	3	2	-	2	1	2
Atmospheric phys/chem	-	1	-	3	-	2	-	-	2	-	1	1	-	-	2
Environmental sciences(9) ..	3	1	2	2	2	3	1	2	4	2	2	1	1	2	3
Geochemistry(10)	1	2	3	1	1	1	1	2	1	2	-	2	1	4	1
Geology(11)	-	-	-	-	-	-	-	-	1	1	2	1	3	-	2
Geomorph/glacial geology ...	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
Geophysics/seismology(12) ..	-	-	4	6	5	4	4	10	3	2	6	3	4	2	4
Geophysics(12)	7	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrology/water res(13)	1	-	-	4	1	1	-	1	1	1	2	1	-	-	-
Marine sciences(2)	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-
Marine sciences, other(14) .	-	-	-	-	-	2	-	2	-	-	-	-	-	-	-
Meteorology(15)	1	4	-	-	-	-	-	-	1	2	1	2	2	1	-
Minerology, petrology(10) ..	-	1	2	-	-	1	-	-	-	-	-	-	2	-	1
Oceanography	3	2	5	1	3	4	2	2	2	3	2	2	-	1	4
Paleontology	1	-	-	-	-	-	-	-	-	1	-	-	1	-	1
Stratigraphy, sediment	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-
Geological sciences, gen(16)	-	-	-	-	-	-	-	-	3	1	-	-	-	-	-
Geological sciences, oth(16)	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-
Earth sciences, general(16).	1	1	1	1	1	1	1	3	-	-	-	-	-	-	-
Earth sciences, other(16) ..	-	-	1	-	1	-	-	1	-	-	-	-	-	-	-
Physical sciences, other(2).	-	-	-	-	-	-	-	-	-	1	2	-	-	1	1
MATHEMATICS	62	49	42	43	46	42	40	32	34	30	33	28	41	33	24
Algebra	6	3	3	-	3	1	2	1	1	4	2	2	2	-	-
Analysis/funct analysis(17).	11	4	6	8	7	2	4	5	2	1	2	4	2	7	5
Applied mathematics	6	6	7	3	5	6	11	7	6	5	6	3	13	5	4
Computing theory	12	8	3	-	-	1	2	-	-	1	-	-	3	-	-
Geometry	1	1	1	-	-	3	2	2	2	-	1	1	-	2	2
Logic	-	-	-	2	-	1	-	1	-	1	2	-	1	-	-
Number theory	2	1	-	1	1	1	1	1	2	-	-	-	-	3	-
Operations research	1	4	4	1	5	4	1	1	-	-	1	5	2	1	-
Probability/math stat (18) .	12	9	12	14	14	17	10	10	16	13	14	3	13	8	7
Topology	3	3	1	2	3	3	1	-	1	1	1	1	1	1	2
Mathematics, general	7	5	3	6	8	3	4	1	1	2	2	7	2	4	3
Mathematics, other	1	5	2	6	-	-	2	3	3	2	2	2	2	2	1
COMPUTER/INFORMATION SCIENCES ..	-	-	-	4	9	9	16	12	20	20	17	37	26	44	52
Computer sciences	-	-	-	4	9	9	16	12	17	16	16	33	21	37	39
Information sci/systems(2) .	-	-	-	-	-	-	-	-	3	4	1	4	5	7	13

See footnotes at end of table.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

Field of study	Year of doctorate														
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
U.S. CITIZENS AND NON-U.S. PERMANENT RESIDENTS															
ASIAN															
AGRICULTURAL & BIOLOGICAL SCI ..	187	167	161	188	188	198	181	182	197	178	175	189	208	201	221
Agricultural sciences	46	20	21	37	23	28	25	23	33	20	24	22	38	30	23
Agronomy	5	1	3	3	2	2	3	5	2	3	1	-	4	3	3
Animal breeding/genetics(20)	-	-	-	-	1	1	1	-	1	-	-	-	1	-	-
Animal nutrition(21)	-	-	-	-	-	-	-	-	-	1	-	1	1	1	-
Animal sci/nutrition(21) ...	7	3	1	3	3	3	4	3	-	-	-	-	-	-	-
Poultry science(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-
Animal sciences, other(21) .	-	-	-	-	-	-	-	-	2	1	1	2	-	3	2
Fish/wildlife(22)	5	1	3	2	1	-	-	-	-	-	-	-	-	-	-
Fisheries science(22)	-	-	-	-	-	-	-	-	3	1	-	-	1	1	1
Wildlife management(22)	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-
Food sciences(23)	16	8	4	18	5	10	6	5	18	6	9	9	17	2	-
Food engineering(23)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Food sciences, other(23) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	10	9
Forestry science(24)	1	1	2	5	2	-	3	1	2	-	1	2	1	-	-
Forest management(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Wood science(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Forestry&relatd sci, oth(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Horticulture science	4	-	3	2	3	2	3	4	2	-	3	-	3	1	1
Plant breeding/genetics(25).	-	-	-	-	-	-	-	-	-	2	5	1	1	1	1
Plant pathology(25)	-	-	-	-	-	-	-	-	1	-	2	2	4	-	1
Phytopathology(25)	3	3	2	-	3	-	2	-	-	-	-	-	-	-	-
Plant sciences, other(25) ..	-	-	-	-	-	-	-	-	-	1	-	-	1	-	1
Soil sciences(26)	4	1	-	1	2	6	2	2	1	2	1	4	4	1	-
Soil chem/microbio(26)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Soil sciences, other(26) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-
Agriculture, general	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-
Agriculture, other	1	1	3	3	1	4	1	2	-	2	1	1	-	-	-
Biological sciences	141	147	140	151	165	170	156	159	164	158	151	167	170	171	198
Anatomy	6	2	2	1	7	3	3	9	2	2	7	2	3	1	2
Biochemistry	38	44	34	44	42	35	37	34	37	33	34	31	29	29	43
Biometrics/biostat	-	5	3	4	5	5	2	2	4	6	3	-	3	2	10
Biophysics	6	6	9	11	9	9	3	4	9	6	4	2	3	6	5
Botany, other(27)	-	-	-	-	-	-	-	-	-	1	4	6	3	-	3
Botany(27)	1	5	1	5	4	5	3	3	-	-	-	-	-	-	-
Cell biology(28)	-	-	-	-	-	-	-	-	5	4	4	4	2	2	6
Cytology(28)	1	1	1	-	4	4	-	3	-	-	-	-	-	-	-
Ecology	2	2	1	4	5	1	4	-	2	1	5	2	3	1	2
Embryology	-	2	-	1	1	1	1	1	-	-	-	-	-	1	-
Endocrinology(2)	-	-	-	-	-	-	-	-	2	4	1	2	-	-	1
Entomology	-	2	5	8	6	5	9	7	4	3	1	1	3	4	3
Human/animal genetics(29) ..	-	-	-	-	-	-	-	-	4	5	5	4	5	9	7
Plant genetics(29)	-	-	-	-	-	-	-	-	-	-	2	1	-	1	-
Genetics(29)	7	6	5	3	9	9	5	6	-	-	-	-	-	-	-
Human/animal pathology(30) .	-	-	-	-	-	-	-	-	7	4	2	6	12	7	7
Plant pathology(30)	-	-	-	-	-	-	-	-	-	-	2	2	-	1	-
Pathology(30)	3	2	5	1	1	3	4	2	-	-	-	-	-	-	-
Human/animal pharmacol	11	13	12	10	5	15	16	15	11	12	11	15	20	12	11
Human/animal physiol(31) ...	-	-	-	-	-	-	-	-	5	8	8	9	8	11	8
Animal physiology(31)	8	6	9	8	14	9	10	9	-	-	-	-	-	-	-
Plant physiology(31)	4	4	-	2	2	3	2	3	3	3	1	2	4	4	1
Hydrobiology	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Immunology	5	2	7	5	6	12	11	7	5	6	6	11	5	13	12
Microbiology(32)	-	-	-	-	-	-	-	-	16	16	8	16	12	11	16
Bacteriology(32)	-	-	-	-	-	-	-	-	1	1	-	1	-	-	-
Microbiology/bacteriol(32) .	17	16	11	13	20	23	16	18	-	-	-	-	-	-	-
Molecular biology	7	6	9	8	5	8	5	9	9	13	15	21	18	19	32
Neurosciences	-	-	-	-	-	-	-	5	3	7	3	3	5	11	5
Nutritional sciences(33) ...	-	9	10	8	7	6	4	4	13	7	5	9	5	6	8
Parasitology	1	-	1	-	1	1	-	-	-	-	1	1	-	-	-
Toxicology(2)	-	-	-	-	-	-	-	-	3	4	4	3	6	3	1
Zoology, other(34)	-	-	-	-	-	-	-	-	7	3	6	2	2	3	3
Zoology(34)	2	2	3	2	3	1	3	6	-	-	-	-	-	-	-
Biological sci, general	6	6	4	7	4	6	14	7	9	6	8	5	10	9	6
Biological sci, other	16	6	8	6	4	6	4	5	3	3	1	6	9	5	6

See footnotes at end of table.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

Field of study	Year of doctorate														
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
U.S. CITIZENS AND NON-U.S. PERMANENT RESIDENTS															
ASIAN															
SOCIAL SCIENCES	80	82	79	96	103	103	95	104	74	90	87	90	111	103	89
Agricultural economics	6	4	1	5	7	2	4	3	4	5	2	3	7	2	3
Anthropology	4	5	6	5	7	9	4	4	2	5	12	5	12	7	4
Area studies	1	2	-	1	-	-	1	1	-	-	1	1	-	1	-
Criminology(35)	-	-	-	-	-	1	-	-	1	-	2	-	1	1	-
Demography(2)	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-
Econometrics	2	3	2	2	-	2	3	2	-	-	1	2	-	2	-
Economics	16	24	20	32	29	38	32	36	36	32	26	28	43	47	35
Geography	5	1	1	3	6	5	4	3	-	3	4	5	2	1	3
History of science(36)	-	2	-	-	-	-	-	-	-	-	-	-	-	1	-
International relations	4	4	4	2	5	4	1	3	1	6	1	4	1	2	1
Linguistics	6	5	8	4	9	6	5	8	5	8	11	6	7	4	6
Pol sci/government(37)	-	-	-	-	-	-	-	-	8	13	10	11	9	6	16
Political science(37)	-	9	18	11	8	11	15	10	-	-	-	-	-	-	-
Pol sci, public admin(37)	20	2	-	-	-	-	-	-	-	-	-	-	-	-	-
Public policy studies(2)	-	-	-	-	-	-	-	-	1	1	1	2	-	1	2
Sociology	13	12	15	16	21	14	18	19	10	11	8	11	18	13	13
Statistics	1	1	1	9	2	6	3	5	2	1	4	6	5	6	1
Urban studies(38)	1	5	2	3	6	2	2	5	2	3	3	1	2	4	1
Social sciences, general	-	-	-	1	1	1	-	3	1	1	-	-	-	-	1
Social sciences, other	1	3	1	2	2	2	3	2	1	1	1	5	3	4	3
PSYCHOLOGY	21	22	33	28	36	50	41	31	44	43	44	41	47	47	55
Clinical	5	7	6	2	11	18	13	11	13	17	16	23	22	16	23
Cognitive(2)	-	-	-	-	-	-	-	-	1	-	2	2	2	3	2
Comparative(39)	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-
Counseling(40)	-	-	3	2	1	4	6	-	5	2	4	2	5	9	6
Developmental(41)	2	3	4	3	2	3	2	4	5	3	3	3	2	3	1
Educational	1	-	1	4	2	4	2	3	3	5	2	-	3	-	1
Experimental(39)	2	3	2	2	7	5	4	4	2	3	1	2	2	4	3
Indust/organizational(42)	2	-	1	1	-	-	1	-	1	-	1	1	1	-	-
Physiological(39)	1	2	2	3	2	3	3	3	4	1	1	1	1	3	2
Quantitative(2)	-	-	-	-	-	-	-	-	1	1	2	-	-	-	3
Personality	1	-	-	2	-	2	1	2	-	-	-	-	-	-	1
Psychometrics	-	-	2	1	1	2	-	-	-	-	-	-	1	-	-
School	1	-	2	-	1	-	1	-	-	-	1	-	-	-	-
Social	5	5	4	2	2	4	1	1	3	5	4	2	4	1	4
Psychology, general	1	2	4	2	3	3	3	3	3	4	2	2	4	6	9
Psychology, other	-	-	2	3	4	2	4	-	2	2	5	3	-	2	-
TOTAL, ENGINEERING	275	279	249	272	306	278	285	246	247	250	281	262	327	333	358
Aeronaut/astronautical(43)	9	6	6	15	10	7	6	7	9	7	12	3	10	13	9
Agricultural	2	2	1	3	2	-	4	2	4	5	1	1	-	1	4
Bioengineering/biomed(44)	1	4	6	8	7	4	6	1	6	3	5	5	3	8	7
Ceramic	1	5	2	2	-	4	3	3	3	1	1	-	4	3	3
Chemical	51	37	37	42	41	35	42	37	32	34	48	54	49	59	66
Civil	28	40	25	19	20	21	26	25	21	31	24	20	30	24	32
Communications(2)	-	-	-	-	-	-	-	-	5	1	5	3	6	5	1
Computer	3	13	16	9	13	7	16	7	9	6	12	7	5	15	8
Electrical/electronics(45)	-	-	-	-	-	-	-	-	52	58	46	61	67	83	83
Electrical(45)	41	50	57	42	71	45	51	47	3	1	-	-	-	-	-
Electronics(45)	9	4	12	3	14	7	7	9	3	-	-	-	-	-	-
Engineering mechanics	28	13	15	11	10	10	7	10	5	7	7	4	7	10	7
Engineering physics(46)	-	2	-	1	1	2	3	-	-	-	2	2	-	1	1
Engineering science(2)	-	-	-	-	-	-	-	-	1	1	4	3	1	2	-
Environmental health eng(47)	7	5	3	6	7	5	2	5	3	2	2	6	4	3	3
Fuel tech/petro eng(8)	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Industrial	3	1	5	2	9	6	6	8	8	6	6	9	6	11	12
Materials science	14	20	17	15	21	15	18	13	17	21	17	19	25	17	22
Mechanical	36	28	17	39	35	55	36	31	29	30	51	27	54	47	59
Metallurgical(48)	14	7	6	15	10	17	15	5	8	10	10	11	15	6	9
Mining/mineral(49)	-	-	-	2	-	-	1	1	2	4	-	-	3	3	3
Nuclear(46)	4	10	11	8	10	13	15	7	7	6	5	7	11	3	3
Ocean(2)	-	-	-	-	-	-	-	-	-	-	-	-	2	2	-
Operations research	8	6	3	8	5	7	10	8	4	2	5	5	7	1	2
Petroleum(50)	2	1	2	3	-	2	2	3	-	-	5	2	3	5	4
Polymer(2)	-	-	-	-	-	-	-	-	3	4	7	2	8	4	6
Systems(51)	5	7	5	6	10	4	3	3	5	7	2	2	1	4	3
Engineering, general	1	7	-	3	3	3	3	3	3	-	-	3	5	2	4
Engineering, other	7	11	3	10	7	9	3	11	5	3	4	6	1	1	7
TOTAL, NON-SCI/ENGINEERING(52)	211	174	165	197	225	236	252	239	265	245	261	251	246	323	279
TOTAL, ALL FIELDS	1025	975	910	1032	1102	1102	1073	1004	1043	1019	1069	1058	1167	1236	1255

See footnotes at end of table.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

	Year of doctorate														
Field of study	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
U.S. CITIZENS AND NON-U.S. PERMANENT RESIDENTS															
BLACK															
TOTAL, SCIENCE/ENGINEERING	291	292	326	330	321	320	332	336	322	357	357	318	308	346	339
TOTAL, SCIENCES	275	271	311	317	301	302	313	316	293	342	323	294	283	315	307
PHYSICAL SCIENCES	34	25	32	37	37	16	24	26	25	34	27	25	20	33	31
Physics/astronomy	11	5	10	8	8	4	6	11	9	11	4	8	7	12	5
Acoustics	-	-	-	-	-	-	-	-	-	2	-	-	-	1	1
Astronomy(1)	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-
Astrophysics(1)	1	-	-	-	1	1	1	-	-	-	-	-	1	-	-
Atomic/molecular	-	-	3	-	1	-	1	1	1	-	-	3	-	1	-
Elementary particle	2	2	3	3	-	-	1	3	1	-	1	2	2	3	-
Nuclear(5)	1	-	1	1	2	-	-	1	2	1	-	-	-	-	-
Optics	1	-	-	-	1	-	-	-	-	1	-	-	-	1	-
Plasma	-	-	-	-	-	2	1	-	-	1	-	1	-	-	-
Solid state	3	2	3	1	1	-	-	4	3	4	1	1	2	2	2
Physics, general	-	-	-	2	-	-	2	1	2	1	1	1	1	2	2
Physics, other	3	1	-	1	2	1	-	-	-	1	1	-	-	2	-
Chemistry	23	20	22	29	29	12	18	15	16	23	23	17	13	21	26
Agricultural/food	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Analytical	4	3	4	5	2	-	1	1	-	1	2	4	4	6	2
Inorganic	4	3	2	5	5	2	5	2	2	1	2	1	3	2	3
Nuclear	-	2	-	-	-	-	-	-	-	-	1	-	-	-	-
Organic	13	2	5	4	9	3	3	4	5	11	11	2	3	5	8
Pharmaceutical	-	-	-	1	-	-	1	-	-	-	-	-	-	-	4
Physical	1	6	7	7	9	2	2	4	5	6	2	3	2	1	5
Polymer	-	-	2	2	1	-	-	1	-	-	2	3	1	1	-
Theoretical	1	1	1	-	1	-	-	-	-	-	-	-	-	1	-
Chemistry, general	-	2	1	4	2	3	6	3	2	2	2	3	-	4	3
Chemistry, other	-	-	-	1	-	2	-	-	2	2	1	1	-	1	1
EARTH, ATMOS, & MARINE SCI	1	-	2	4	3	1	4	3	1	3	4	1	2	3	4
Atmos/meteorol sci, other	-	-	-	-	1	-	-	-	1	-	-	-	1	-	-
Atmospheric phys/chem	-	-	-	-	1	-	1	1	-	-	-	-	-	-	-
Environmental sciences(9)	1	-	-	2	-	-	2	-	-	-	1	-	1	1	2
Geochemistry(10)	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-
Geology(11)	-	-	-	-	-	-	-	-	-	1	-	-	-	1	1
Geomorph/glacial geology	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Geophysics/seismology(12)	-	-	-	-	-	-	1	1	-	-	-	-	-	1	-
Hydrology/water res(13)	-	-	1	1	-	-	-	1	-	1	-	-	-	-	-
Meteorology(15)	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Minerology, petrology(10)	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Oceanography	-	-	1	-	-	-	-	-	-	1	-	-	-	-	1
Earth sciences, general(16)	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Physical sciences, other(2)	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
MATHEMATICS	11	5	10	13	11	12	9	6	3	4	7	6	11	4	8
Algebra	2	2	-	2	2	2	-	1	-	-	-	-	-	1	1
Analysis/funct analysis(17)	1	1	3	2	3	3	3	-	-	1	-	-	1	-	1
Applied mathematics	2	-	3	3	1	1	-	-	-	1	-	3	2	1	2
Computing theory	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Geometry	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-
Logic	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-
Number theory	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-
Operations research	1	-	-	1	1	-	2	1	-	1	-	-	-	-	-
Probability/math stat (18)	2	-	1	2	1	2	3	2	1	1	4	1	4	-	-
Topology	1	1	1	1	1	-	-	-	1	-	-	-	-	-	-
Mathematics, general	2	-	1	-	1	2	1	-	1	-	1	1	2	1	2
Mathematics, other	-	1	-	1	-	2	-	-	-	-	2	1	1	-	2
COMPUTER/INFORMATION SCIENCES	-	-	-	-	1	-	2	1	3	3	3	1	2	2	1
Computer sciences	-	-	-	-	1	-	2	1	2	3	3	1	1	1	-
Information sci/systems(2)	-	-	-	-	-	-	-	-	1	-	-	-	1	1	1

See footnotes at end of table.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

	Year of doctorate														
Field of study	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
U.S. CITIZENS AND NON-U.S. PERMANENT RESIDENTS															
BLACK															
AGRICULTURAL & BIOLOGICAL SCI ..	54	61	51	66	44	58	61	56	58	68	69	64	73	68	66
Agricultural sciences	5	8	15	11	9	7	11	7	12	18	16	16	13	20	14
Agronomy	1	3	1	1	2	2	-	2	4	3	1	1	1	5	-
Animal breeding/genetics(20)	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Animal nutrition(21)	-	-	-	-	-	-	-	-	-	2	-	1	-	1	2
Animal sci/nutrition(21) ...	2	1	2	4	-	-	2	3	-	-	-	-	-	-	-
Poultry science(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Animal sciences, other(21) .	-	-	-	-	-	-	-	-	3	1	2	1	3	1	-
Fish/wildlife(22)	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Fisheries science(22)	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-
Wildlife management(22)	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Wildlife/range mgmt(22)	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-
Food sciences(23)	-	1	3	1	3	-	1	1	-	4	4	2	2	1	-
Food sciences, other(23) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1
Forestry science(24)	-	-	1	-	-	-	2	-	1	-	2	-	1	-	-
Forest biology(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Renewable natrl resrces(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Forestry&relatd sci, oth(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Horticulture science	-	2	-	-	2	1	1	-	2	1	-	2	2	-	2
Plant breeding/genetics(25).	-	-	-	-	-	-	-	-	1	-	-	1	1	2	2
Plant pathology(25)	-	-	-	-	-	-	-	-	-	3	1	3	1	1	1
Phytopathology(25)	-	-	2	-	1	2	1	-	-	-	-	-	-	-	-
Plant sciences, other(25) ..	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-
Soil sciences(26)	2	1	4	1	-	-	3	-	-	-	2	2	2	1	-
Soil sciences, other(26) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Agriculture, general	-	-	-	-	-	-	-	-	-	-	1	-	-	1	1
Agriculture, other	-	-	2	3	1	2	1	1	-	1	2	2	-	-	2
Biological sciences	49	53	36	55	35	51	50	49	46	50	53	48	60	48	52
Anatomy	1	-	-	2	2	3	1	-	-	3	-	-	-	-	1
Biochemistry	7	4	6	9	5	7	9	5	7	5	6	6	6	7	6
Biometrics/biostat	-	-	-	-	2	-	-	2	3	1	2	-	2	3	1
Biophysics	2	-	1	-	-	2	-	1	-	-	-	-	-	1	3
Botany, other(27)	-	-	-	-	-	-	-	-	-	1	1	-	2	-	-
Botany(27)	2	1	3	5	2	1	1	-	-	-	-	-	-	-	-
Cell biology(28)	-	-	-	-	-	-	-	-	2	6	1	4	2	2	2
Cytology(28)	-	2	-	-	1	-	1	1	-	-	-	-	-	-	-
Ecology	1	2	2	-	-	2	-	-	1	2	-	1	2	-	1
Embryology	-	-	-	-	2	-	3	-	-	1	-	-	-	-	-
Endocrinology(2)	-	-	-	-	-	-	-	-	-	2	-	-	-	2	-
Entomology	2	2	1	1	-	2	-	-	-	-	1	3	1	2	3
Human/animal genetics(29) ..	-	-	-	-	-	-	-	-	1	1	3	-	2	1	1
Plant genetics(29)	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Genetics(29)	3	6	-	1	-	-	-	1	-	-	-	-	-	-	-
Human/animal pathology(30) .	-	-	-	-	-	-	-	-	3	3	1	4	-	-	3
Plant pathology(30)	-	-	-	-	-	-	-	-	1	-	2	-	-	-	-
Pathology(30)	2	1	-	2	-	2	-	3	-	-	-	-	-	-	-
Human/animal pharmacol	1	4	1	6	1	4	3	2	-	3	7	5	1	1	4
Human/animal physiol(31) ...	-	-	-	-	-	-	-	-	3	3	4	2	2	4	2
Animal physiology(31)	7	6	-	4	5	1	2	4	-	-	-	-	-	-	-
Plant physiology(31)	-	-	1	-	-	2	-	-	1	1	-	2	1	-	-
Immunology	1	4	-	1	2	2	2	2	1	1	2	-	-	-	2
Microbiology(32)	-	-	-	-	-	-	-	-	7	5	5	6	5	5	7
Bacteriology(32)	-	-	-	-	-	-	-	-	-	1	1	1	-	-	-
Microbiology/bacteriol(32) .	8	3	6	12	5	6	7	5	-	-	-	-	-	-	-
Molecular biology	2	4	1	2	1	5	3	5	2	2	1	1	5	3	2
Neurosciences	-	-	-	-	-	-	-	1	2	1	1	-	3	1	2
Nutritional sciences(33) ...	-	2	4	2	5	3	7	8	3	3	4	5	7	8	5
Parasitology	-	1	-	-	2	-	-	1	-	2	2	-	2	2	-
Toxicology(2)	-	-	-	-	-	-	-	-	1	1	1	-	5	1	1
Zoology, other(34)	-	-	-	-	-	-	-	-	4	1	5	1	5	5	1
Zoology(34)	3	6	3	5	-	3	3	5	-	-	-	-	-	-	-
Biological sci, general	3	2	5	2	-	5	5	2	3	1	1	4	4	-	1
Biological sci, other	4	3	2	1	-	1	3	1	1	-	1	3	3	-	4

See footnotes at end of table.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

Field of study	Year of doctorate														
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
U.S. CITIZENS AND NON-U.S. PERMANENT RESIDENTS															
BLACK															
SOCIAL SCIENCES	97	94	121	97	90	96	100	109	91	109	108	88	82	102	102
Agricultural economics	-	2	2	4	2	4	7	2	-	3	6	-	3	4	5
Anthropology	6	13	1	5	8	10	7	7	7	10	10	4	9	6	6
Area studies	2	3	-	3	1	2	1	-	1	1	1	2	2	2	-
Criminology(35)	-	-	-	-	-	-	-	4	2	2	2	2	1	8	5
Demography(2)	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1
Econometrics	-	-	1	-	-	-	-	-	1	-	1	1	-	-	1
Economics	10	10	19	6	9	13	16	18	15	20	14	15	14	15	11
Geography	6	3	3	2	2	5	2	2	3	3	1	-	4	-	3
History of science(36)	-	-	-	-	-	-	-	-	-	-	-	1	2	-	-
International relations	1	2	4	4	1	1	4	6	5	2	4	3	3	2	8
Linguistics	4	2	6	3	3	9	2	3	4	3	2	4	2	3	4
Pol sci/government(37)	-	-	-	-	-	-	-	-	18	21	22	17	17	16	17
Political science(37)	-	15	33	27	24	16	25	24	-	-	-	-	-	-	-
Pol sci, public admin(37) ..	24	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Public policy studies(2) ...	-	-	-	-	-	-	-	-	2	4	4	7	4	8	4
Sociology	26	33	33	29	30	24	25	30	26	28	26	25	12	22	26
Urban studies(38)	9	5	9	6	6	5	4	7	4	4	8	1	6	7	5
Social sciences, general ...	1	-	6	4	1	1	1	1	1	-	1	-	1	1	1
Social sciences, other	8	5	4	4	3	6	6	5	2	8	6	5	2	8	5
PSYCHOLOGY	78	86	95	100	115	119	113	115	112	121	105	109	93	103	95
Clinical	22	29	40	42	40	43	55	44	47	47	50	53	45	45	44
Cognitive(2)	-	-	-	-	-	-	-	-	-	1	-	1	1	1	1
Comparative(39)	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-
Counseling(40)	8	10	7	9	14	9	17	17	15	26	17	17	16	18	15
Developmental(41)	1	5	1	4	6	12	2	10	10	4	4	-	3	6	3
Educational	3	5	2	6	8	7	2	3	2	6	5	1	1	8	3
Experimental(39)	6	3	5	5	3	2	3	4	2	3	2	1	-	-	4
Indust/organizational(42) ..	-	1	1	1	-	4	4	2	3	5	1	5	3	1	2
Physiological(39)	2	2	1	4	-	5	1	1	1	1	1	-	-	-	2
Quantitative(2)	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Personality	2	4	4	1	3	-	3	1	1	1	2	1	2	2	1
Psychometrics	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-
School	4	5	3	4	4	5	2	3	1	6	3	4	2	3	4
Social	12	8	8	9	14	13	9	10	15	9	11	11	8	4	5
Psychology, general	11	7	6	6	12	10	9	14	11	8	4	12	10	15	6
Psychology, other	7	6	16	9	9	9	6	6	4	4	4	3	2	-	5
TOTAL, ENGINEERING	16	21	15	13	20	18	19	20	29	15	34	24	25	31	32
Aeronaut/astronautical(43) .	-	1	-	-	1	1	-	3	1	-	3	-	1	1	1
Agricultural	-	-	-	-	2	1	-	-	1	-	2	-	1	-	2
Bioengineering/biomed(44) ..	-	-	-	1	1	1	1	-	-	1	-	-	2	1	2
Chemical	-	2	1	1	1	1	2	1	3	2	4	3	3	6	3
Civil	1	3	-	3	2	1	3	-	5	-	4	3	4	1	4
Computer	-	-	1	1	-	2	-	-	-	1	-	-	-	1	-
Electrical/electronics(45) .	-	-	-	-	-	-	-	-	2	3	8	4	3	6	9
Electrical(45)	5	8	5	2	6	6	6	4	-	-	-	-	-	-	-
Electronics(45)	2	1	1	-	3	-	1	-	-	-	-	-	-	-	-
Engineering mechanics	-	-	-	-	-	-	1	1	-	-	1	1	1	-	1
Engineering physics(46)	1	-	1	-	-	-	-	-	1	-	-	-	-	-	-
Engineering science(2)	-	-	-	-	-	-	-	-	-	-	-	1	2	-	-
Environmental health eng(47)	-	1	1	1	-	-	1	2	1	-	-	1	-	-	-
Industrial	1	-	1	3	-	-	-	1	2	1	2	-	-	7	2
Materials science	-	1	-	-	-	1	-	1	1	-	-	2	2	1	-
Mechanical	5	1	1	-	1	2	1	2	5	2	2	2	2	1	4
Metallurgical(48)	1	-	-	-	-	-	-	-	4	-	2	1	2	1	-
Mining/mineral(49)	-	-	-	-	-	-	-	-	1	-	-	-	1	-	1
Nuclear(46)	-	1	1	-	-	-	1	2	-	1	1	3	-	3	-
Operations research	-	1	-	-	1	1	-	1	-	-	-	-	-	1	-
Petroleum(50)	-	-	1	-	-	1	1	1	-	-	-	1	1	1	1
Polymer(2)	-	-	-	-	-	-	-	-	1	-	2	-	-	-	1
Systems(51)	-	1	1	-	1	-	1	-	-	2	2	-	-	-	-
Engineering, general	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-
Engineering, other	-	-	-	-	-	-	-	1	1	2	1	2	-	-	1
TOTAL, NON-SCI/ENGINEERING(52) ...	766	857	868	776	793	786	778	807	683	698	686	630	598	613	607
TOTAL, ALL FIELDS	1057	1149	1194	1106	1114	1106	1110	1143	1005	1055	1043	948	906	959	946

See footnotes at end of table.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

Field of study	Year of doctorate														
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
U.S. CITIZENS AND NON-U.S. PERMANENT RESIDENTS															
HISPANIC															
TOTAL, SCIENCE/ENGINEERING	145	131	189	213	229	213	238	269	282	295	290	342	354	394	372
TOTAL, SCIENCES	128	115	167	181	205	186	222	233	253	261	268	307	320	331	325
PHYSICAL SCIENCES	19	17	33	20	33	27	30	25	26	47	30	40	56	63	59
Physics/astronomy	9	6	13	6	15	12	8	9	5	14	13	15	12	15	16
Acoustics	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Astronomy(1)	-	-	-	-	1	2	-	-	-	1	-	1	-	2	1
Astrophysics(1)	-	-	-	1	1	1	2	-	-	-	-	1	-	-	1
Atomic/molecular	1	1	1	1	1	-	1	3	-	2	-	1	5	-	-
Elementary particle	-	-	2	2	3	2	2	-	1	3	2	3	-	1	3
Fluids	-	-	-	-	1	-	-	1	-	-	1	-	-	-	-
Nuclear(5)	2	1	1	-	-	1	-	-	-	2	2	-	1	1	-
Optics	-	1	1	-	-	-	-	-	1	-	-	4	-	1	1
Plasma	1	-	-	-	-	1	-	1	1	1	1	-	-	1	1
Solid state	1	2	2	2	3	3	3	4	-	4	4	2	3	7	6
Physics, general	2	1	3	-	2	1	-	-	1	-	1	2	2	-	2
Physics, other	2	-	2	-	3	1	-	-	1	1	2	1	1	2	1
Chemistry	10	11	20	14	18	15	22	16	21	33	17	25	44	48	43
Analytical	-	2	1	3	3	4	1	1	4	3	3	4	8	11	2
Inorganic	3	1	2	1	1	1	4	2	-	2	4	5	6	4	7
Nuclear	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-
Organic	3	3	5	5	6	7	7	5	11	12	6	8	14	11	10
Pharmaceutical	-	1	1	-	-	-	2	-	-	1	-	-	2	2	1
Physical	4	4	6	1	7	2	4	3	4	8	3	5	7	12	12
Polymer	-	-	1	1	-	-	-	1	1	-	-	-	-	-	2
Theoretical	-	-	-	1	1	-	1	-	-	-	-	-	1	-	-
Chemistry, general	-	-	4	2	-	-	2	3	-	5	1	3	4	7	4
Chemistry, other	-	-	-	-	-	1	-	1	1	1	-	-	2	1	5
EARTH, ATMOS, & MARINE SCI	4	-	12	5	6	4	6	7	11	2	6	5	5	8	9
Applied geology(8)	1	-	1	-	-	-	-	1	-	-	1	-	-	-	-
Atmos/meteorol sci, other ..	-	-	3	-	-	1	-	-	-	-	-	-	-	-	-
Atmospheric dynamics	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Atmospheric phys/chem	-	-	-	-	2	-	1	-	-	-	-	-	-	1	1
Environmental sciences(9) ..	-	-	1	1	1	-	-	1	2	-	2	-	-	1	-
Geochemistry(10)	1	-	-	-	1	-	1	1	1	-	-	-	1	1	-
Geology(11)	-	-	-	-	-	-	-	-	1	-	1	-	-	1	-
Structural geology(11)	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Geophysics/seismology(12) ..	-	-	2	1	-	1	1	1	-	-	2	2	1	1	3
Hydrology/water res(13)	-	-	-	-	1	-	-	-	2	-	-	-	-	1	-
Marine sciences(2)	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-
Marine sciences, other(14) .	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-
Meteorology(15)	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Minerology, petrology(10) ..	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1
Oceanography	2	-	1	-	1	-	1	-	3	1	-	2	2	-	3
Paleontology	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1
Stratigraphy, sediment	-	-	-	-	-	-	1	1	-	-	-	-	-	1	-
Geological sciences, gen(16)	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Earth sciences, general(16).	-	-	1	2	-	1	1	-	-	-	-	-	-	-	-
Earth sciences, other(16) ..	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-
Physical sciences, other(2).	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
MATHEMATICS	8	9	10	5	10	5	5	6	7	11	12	12	11	4	11
Algebra	-	1	2	-	2	1	-	3	1	-	-	2	1	-	5
Analysis/funct analysis(17).	2	3	2	-	1	-	-	-	-	2	1	-	1	-	1
Applied mathematics	3	1	2	-	2	2	1	1	1	-	5	5	3	1	-
Computing theory	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-
Geometry	-	-	-	-	-	-	1	1	1	-	1	1	-	-	2
Number theory	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Operations research	-	-	-	1	-	-	-	-	1	-	-	-	-	-	1
Probability/math stat (18) .	-	1	2	1	4	1	1	-	-	5	3	2	2	2	1
Topology	1	-	1	1	-	-	-	-	-	2	1	-	2	-	-
Mathematics, general	-	1	-	-	1	1	1	1	2	2	1	2	1	1	1
Mathematics, other	1	-	-	2	-	-	1	-	1	-	-	-	1	-	-
COMPUTER/INFORMATION SCIENCES ..	-	-	-	-	2	1	-	1	-	3	6	7	4	2	4
Computer sciences	-	-	-	-	2	1	-	1	-	3	3	6	4	2	3
Information sci/systems(2) .	-	-	-	-	-	-	-	-	-	-	3	1	-	-	1

See footnotes at end of table.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

	Year of doctorate														
Field of study	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
U.S. CITIZENS AND NON-U.S. PERMANENT RESIDENTS															
HISPANIC															
AGRICULTURAL & BIOLOGICAL SCI ..	36	29	29	39	44	36	56	54	49	52	71	83	77	97	90
Agricultural sciences	4	4	4	9	6	5	15	7	6	8	12	17	15	21	18
Agronomy	1	-	1	-	1	-	3	1	4	-	-	2	1	2	4
Animal breeding/genetics(20)	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
Animal nutrition(21)	-	-	-	-	-	-	-	-	-	1	2	-	3	3	2
Animal sci/nutrition(21) ...	1	-	1	-	1	1	2	-	-	-	-	-	-	-	-
Dairy science(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Animal sciences, other(21) .	-	-	-	-	-	-	-	-	-	2	1	3	2	2	2
Fish/wildlife(22)	-	-	-	1	1	-	1	-	-	-	-	-	-	-	-
Fisheries science(22)	-	-	-	-	-	-	-	-	-	-	-	1	1	1	-
Wildlife/range mgmt(22)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Food sciences(23)	1	1	-	2	1	1	3	2	1	-	1	3	2	-	-
Food engineering(23)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Food sciences, other(23) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Forestry science(24)	-	-	-	1	1	-	1	1	-	-	-	1	1	-	-
Forestry&relatd sci, oth(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Horticulture science	-	1	1	1	-	-	2	1	-	-	1	2	-	1	1
Plant breeding/genetics(25).	-	-	-	-	-	-	-	-	-	1	2	-	1	3	-
Plant pathology(25)	-	-	-	-	-	-	-	-	-	2	1	1	-	-	3
Phytopathology(25)	-	1	-	2	1	1	1	1	-	-	-	-	-	-	-
Plant sciences, other(25) ..	-	-	-	-	-	-	-	-	1	1	1	-	1	1	1
Soil sciences(26)	-	1	1	-	-	1	2	-	-	1	2	2	1	-	-
Soil chem/microbio(26)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Soil sciences, other(26) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1
Agriculture, general	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Agriculture, other	1	-	-	1	-	1	-	1	-	-	1	1	2	1	-
Biological sciences	32	25	25	30	38	31	41	47	43	44	59	66	62	76	72
Anatomy	-	-	2	-	4	-	2	1	1	3	1	-	2	[illegible]	1
Biochemistry	7	6	5	8	7	5	6	5	8	4	8	13	14	15	11
Biometrics/biostat	-	1	1	-	-	-	-	-	-	-	1	-	-	-	1
Biophysics	-	-	1	-	2	-	1	1	2	-	-	3	3	-	-
Botany, other(27)	-	-	-	-	-	-	-	-	2	2	2	1	1	2	1
Botany(27)	1	4	3	1	2	2	1	3	-	-	-	-	-	-	-
Cell biology(28)	-	-	-	-	-	-	-	-	1	2	2	4	1	1	2
Cytology(28)	2	-	1	-	1	1	1	-	-	-	-	-	-	-	-
Ecology	1	1	-	-	3	3	3	1	2	1	3	2	1	-	2
Embryology	-	-	-	-	1	1	-	-	-	1	-	-	-	-	-
Endocrinology(2)	-	-	-	-	-	-	-	-	-	1	1	1	-	2	-
Entomology	3	1	2	1	2	3	3	3	-	2	4	4	-	4	1
Human/animal genetics(29) ..	-	-	-	-	-	-	-	-	2	-	1	2	-	2	1
Plant genetics(29)	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Genetics(29)	2	-	3	-	-	1	2	2	-	-	-	-	-	-	-
Human/animal pathology(30) .	-	-	-	-	-	-	-	-	1	1	2	1	3	1	1
Plant pathology(30)	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-
Pathology(30)	1	-	1	-	1	-	-	-	-	-	-	-	-	-	-
Human/animal pharmacol	2	-	-	-	1	2	1	2	2	5	4	5	4	6	3
Human/animal physiol(31) ...	-	-	-	-	-	-	-	-	1	3	3	2	4	3	7
Animal physiology(31)	3	2	4	4	2	3	4	4	-	-	-	-	-	-	-
Plant physiology(31)	-	-	-	2	1	-	1	-	-	-	1	2	1	2	3
Immunology	-	-	-	3	2	1	2	4	3	1	2	4	2	3	4
Microbiology(32)	-	-	-	-	-	-	-	-	5	4	4	8	5	5	6
Microbiology/bacteriol(32) .	5	4	2	4	1	4	6	4	-	-	-	-	-	-	-
Molecular biology	2	-	-	2	2	2	3	6	3	1	3	5	1	6	8
Neurosciences	-	-	-	-	-	-	-	1	4	1	3	1	2	3	6
Nutritional sciences(33) ...	-	1	-	3	-	1	-	2	1	-	2	3	6	3	3
Parasitology	1	-	-	1	1	-	1	-	-	1	1	-	-	1	1
Toxicology(2)	-	-	-	-	-	-	-	-	-	-	1	-	3	2	1
Zoology, other(34)	-	-	-	-	-	-	-	-	2	2	1	1	3	3	3
Zoology(34)	1	2	-	1	1	1	2	5	-	-	-	-	-	-	-
Biological sci, general	-	3	-	-	2	1	1	2	1	6	4	2	2	6	5
Biological sci, other	1	-	-	-	2	-	1	1	2	3	4	1	4	4	1

See footnotes at end of table.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

	Year of doctorate														
Field of study	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
U.S. CITIZENS AND NON-U.S. PERMANENT RESIDENTS															
HISPANIC															
SOCIAL SCIENCES	29	33	43	61	61	59	59	66	66	62	74	71	72	64	64
Agricultural economics	2	2	2	3	1	2	2	3	4	2	3	2	2	-	3
Anthropology	3	9	6	8	6	3	9	6	8	5	15	14	13	14	8
Area studies	1	1	-	2	1	-	-	1	1	1	2	-	-	-	-
Criminology(35)	-	-	-	-	-	-	1	-	3	-	-	-	3	-	-
Demography(2)	-	-	-	-	-	-	-	-	-	-	1	-	-	1	1
Econometrics	-	-	-	-	-	1	-	2	-	2	-	-	-	-	1
Economics	4	2	3	7	10	13	12	12	8	12	14	6	13	12	12
Geography	-	-	3	2	1	1	2	1	2	2	3	1	2	1	-
History of science(36)	-	-	-	-	-	-	-	-	-	-	-	2	-	-	1
International relations	-	2	2	3	1	-	1	1	4	-	4	2	3	-	3
Linguistics	-	-	7	3	6	6	3	5	3	7	5	5	6	8	4
Pol sci/government(37)	-	-	-	-	-	-	-	-	11	10	6	11	10	6	5
Political science(37)	-	8	5	9	13	10	8	10	-	-	-	-	-	-	-
Pol sci, public admin(37)	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Public policy studies(2)	-	-	-	-	-	-	-	-	2	1	-	2	6	1	-
Sociology	8	6	14	13	15	16	15	18	11	17	17	14	10	16	22
Statistics	1	1	-	-	-	1	-	-	-	-	-	1	1	-	-
Urban studies(38)	-	1	-	4	2	3	3	-	3	-	2	2	-	-	-
Social sciences, general	1	-	-	1	-	1	1	-	-	-	-	2	1	4	1
Social sciences, other	-	1	1	6	5	2	2	7	6	3	2	7	2	1	3
PSYCHOLOGY	32	27	40	51	49	54	66	74	94	84	69	89	95	93	88
Clinical	9	8	19	19	24	25	30	31	45	37	24	45	39	40	47
Cognitive(2)	-	-	-	-	-	-	-	-	3	2	1	1	1	-	-
Comparative(39)	-	1	-	-	1	-	1	1	-	-	-	-	-	1	-
Counseling(40)	5	4	4	3	4	8	7	9	11	12	11	7	20	10	10
Developmental(41)	1	2	1	1	3	3	1	5	5	7	5	6	5	3	2
Educational	4	1	3	3	1	2	5	5	2	2	3	2	2	3	2
Experimental(39)	2	1	1	3	-	5	3	4	4	3	1	3	1	8	1
Indust/organizational(42)	1	-	3	-	2	1	1	-	1	1	1	2	3	3	1
Physiological(39)	2	5	2	4	1	1	1	2	-	4	1	2	4	5	1
Quantitative(2)	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1
Personality	1	-	-	2	2	1	-	-	-	-	-	1	1	-	1
Psychometrics	-	1	-	1	-	-	-	-	-	-	-	-	-	3	-
School	-	-	2	2	-	-	3	3	2	2	4	1	3	1	6
Social	-	2	-	4	4	-	4	5	10	1	4	5	6	6	-
Psychology, general	3	1	2	4	3	5	6	6	10	9	9	7	5	7	12
Psychology, other	4	1	3	5	4	3	4	3	1	4	5	6	5	3	4
TOTAL, ENGINEERING	17	16	22	32	24	27	16	36	29	34	22	35	34	63	47
Aeronaut/astronautical(43)	-	-	2	1	1	1	-	1	-	1	-	1	1	1	1
Agricultural	-	-	-	-	1	1	-	-	-	-	2	-	-	4	1
Bioengineering/biomed(44)	-	-	1	2	2	1	-	-	1	2	-	2	2	3	3
Ceramic	-	-	-	-	2	-	-	-	-	1	-	-	-	-	1
Chemical	4	3	5	2	3	4	1	5	6	3	2	4	11	5	8
Civil	-	-	2	6	2	7	4	3	7	1	7	7	1	13	8
Communications(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Computer	-	-	1	3	-	-	-	-	-	-	-	-	1	-	-
Electrical/electronics(45)	-	-	-	-	-	-	-	-	3	7	4	9	5	13	12
Electrical(45)	2	3	4	7	3	4	-	6	1	1	-	-	-	-	-
Electronics(45)	-	1	-	1	2	2	2	1	-	-	-	-	-	-	-
Engineering mechanics	1	2	-	-	-	1	-	1	-	-	-	2	-	2	-
Engineering physics(46)	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Engineering science(2)	-	-	-	-	-	-	-	-	-	1	1	-	-	1	1
Environmental health eng(47)	2	3	-	2	1	-	3	-	1	2	-	-	-	-	1
Industrial	-	-	2	-	-	1	1	3	1	2	-	-	1	2	-
Materials science	2	-	-	-	1	-	-	2	2	2	-	2	2	5	-
Mechanical	1	1	2	3	2	-	3	4	2	5	3	4	5	5	3
Metallurgical(48)	1	-	-	2	-	1	1	1	-	2	-	-	2	-	-
Mining/mineral(49)	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Nuclear(46)	1	-	-	1	2	-	-	2	2	1	1	-	1	2	2
Ocean(2)	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Operations research	2	-	-	1	2	2	-	1	2	-	1	-	1	1	1
Petroleum(50)	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-
Polymer(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Systems(51)	1	2	1	-	-	-	1	1	-	3	-	2	-	-	1
Engineering, general	-	-	-	1	-	-	-	-	-	-	-	-	-	4	1
Engineering, other	-	1	1	-	-	1	-	4	-	-	1	2	-	1	1
TOTAL, NON-SCI/ENGINEERING(52)	192	232	285	325	310	272	288	345	326	312	344	336	355	301	308
TOTAL, ALL FIELDS	337	363	474	538	539	485	526	614	608	607	634	678	709	695	680

See footnotes at end of table.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

	Year of doctorate														
Field of study	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
U.S. CITIZENS AND NON-U.S. PERMANENT RESIDENTS															
WHITE															
TOTAL, SCIENCE/ENGINEERING	13449	13207	12658	12021	12123	12146	12388	12330	12478	12246	12003	12014	11920	12317	12219
TOTAL, SCIENCES	11798	11683	11229	10852	10966	11003	11295	11230	11350	11089	10815	10660	10463	10664	10505
PHYSICAL SCIENCES	2180	2032	1883	1750	1787	1661	1757	1859	1917	1888	1900	1858	1942	1926	1809
Physics/astronomy	873	843	747	710	694	622	635	645	655	677	657	650	675	669	627
Acoustics	10	9	6	11	10	18	9	7	11	12	7	11	13	11	11
Astronomy(1)	50	63	52	55	43	40	39	43	43	32	33	38	32	42	31
Astrophysics(1)	51	56	42	56	42	51	50	38	52	46	44	41	37	50	42
Atomic/molecular	103	84	75	65	55	45	45	62	41	53	40	40	45	52	40
Electron(2)	-	-	-	-	-	-	-	-	1	-	3	1	6	1	2
Electromagnetism(3)	9	7	6	8	4	-	-	-	-	-	-	-	-	-	-
Elementary particle	95	90	93	86	78	75	80	74	84	84	94	86	92	98	83
Fluids	16	16	11	8	11	8	8	7	11	7	9	2	9	10	9
Mechanics(4)	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Nuclear(5)	87	69	64	50	69	49	39	36	62	50	54	50	44	48	52
Optics	20	39	23	24	33	29	34	33	27	36	34	37	36	41	39
Plasma	35	58	51	50	39	45	46	47	47	52	36	41	46	42	37
Polymer(2)	-	-	-	-	-	-	-	-	5	4	5	6	9	8	2
Solid state	215	191	165	162	152	128	163	161	145	162	149	154	158	131	138
Thermal(7)	8	2	3	7	5	5	3	-	-	-	-	-	-	-	-
Physics, general	82	72	75	64	81	60	53	64	57	71	78	65	82	63	74
Physics, other	90	84	81	64	72	69	66	73	69	68	71	78	66	72	67
Chemistry	1307	1189	1136	1040	1093	1039	1122	1214	1262	1211	1243	1208	1267	1257	1182
Agricultural/food	4	7	5	3	6	-	-	-	-	-	-	-	-	-	-
Analytical	117	124	145	134	166	141	189	162	214	175	230	194	233	216	214
Inorganic	191	187	158	150	155	146	144	180	176	190	187	194	176	187	177
Nuclear	18	18	19	9	8	12	9	14	9	8	5	13	11	4	6
Organic	455	379	375	330	332	331	377	389	376	377	342	354	344	355	331
Pharmaceutical	46	34	32	29	27	24	36	35	47	36	36	36	39	43	44
Physical	302	258	243	212	238	208	206	253	230	242	224	205	201	203	188
Polymer	28	24	34	28	37	26	25	25	36	35	39	39	50	34	38
Theoretical	34	41	27	35	38	38	25	24	35	28	40	26	34	36	27
Chemistry, general	66	69	55	59	53	63	60	76	84	65	81	84	120	116	92
Chemistry, other	46	48	43	51	33	50	51	56	55	55	59	63	59	63	65
EARTH, ATMOS, & MARINE SCI	475	489	517	466	500	485	448	510	453	461	430	413	408	500	507
Applied geology(8)	13	15	15	12	15	21	16	16	5	6	5	4	2	6	4
Atmos/meteorol sci, gen(2) .	-	-	-	-	-	-	-	-	11	4	4	5	7	9	8
Atmos/meteorol sci, other ..	-	13	28	25	27	33	18	19	17	8	6	5	5	8	10
Atmospheric dynamics	-	9	25	15	15	13	21	16	9	14	13	9	9	17	8
Atmospheric phys/chem	-	12	14	17	12	15	12	15	17	8	14	15	15	10	8
Environmental sciences(9) ..	63	52	42	33	44	32	42	42	35	36	30	28	22	43	52
Geochemistry(10)	34	38	46	43	46	42	44	40	41	36	36	26	18	30	26
Geology(11)	-	-	-	-	-	-	-	-	75	95	78	96	79	105	125
Structural geology(11)	15	20	16	25	23	18	27	24	-	-	-	-	-	-	-
Geomorph/glacial geology ...	27	27	21	20	14	12	12	19	9	8	12	9	16	8	9
Geophysics/seismology(12) ..	-	27	50	38	59	46	50	53	52	45	56	51	39	47	51
Geophysics(12)	57	18	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrology/water res(13)	16	11	13	15	11	20	12	13	9	12	7	10	11	13	14
Marine sciences(2)	-	-	-	-	-	-	-	-	15	16	20	18	27	21	19
Marine sciences, other(14) .	-	-	8	26	28	21	27	33	-	-	-	-	-	-	-
Meteorology(15)	29	14	-	-	-	-	-	-	11	20	15	13	8	18	18
Minerology, petrology(10) ..	30	43	50	30	28	42	26	37	19	26	24	15	20	16	29
Oceanography	69	70	88	77	72	72	56	77	64	57	48	51	46	52	53
Paleontology	37	37	26	29	33	20	18	22	15	29	20	12	16	22	13
Stratigraphy, sediment	40	47	31	26	28	36	36	43	19	14	20	13	18	25	19
Geological sciences, gen(16)	-	-	-	-	-	-	-	-	6	6	8	6	12	4	10
Geological sciences, oth(16)	-	-	-	-	-	-	-	-	15	18	8	11	24	26	20
Earth sciences, general(16).	24	19	29	23	27	26	20	23	-	-	-	-	-	-	-
Earth sciences, other(16) ..	21	17	15	12	18	16	11	18	-	-	-	-	-	-	-
Physical sciences, other(2).	-	-	-	-	-	-	-	-	9	3	6	16	14	20	11
MATHEMATICS	796	698	649	563	505	496	448	437	395	380	350	343	319	332	369
Algebra	97	89	70	70	68	61	39	42	36	38	30	17	27	32	21
Analysis/funct analysis(17).	124	107	105	82	71	66	67	58	44	36	51	43	37	44	45
Applied mathematics	69	70	79	73	68	67	73	71	85	70	51	64	64	68	73
Computing theory	120	117	80	42	22	11	11	7	8	5	12	5	8	8	9
Geometry	20	13	16	14	20	28	23	20	23	16	18	21	11	19	23
Logic	32	26	12	16	17	19	17	14	16	15	21	17	9	10	5
Number theory	18	21	28	16	13	20	19	22	9	19	10	15	10	8	17
Operations research	36	25	26	31	25	22	17	18	9	13	13	11	9	16	10
Probability/math stat (18) .	123	102	108	109	104	88	95	95	82	92	67	74	58	60	82
Topology	72	52	51	41	47	47	40	38	31	26	24	20	26	15	22
Mathematics, general	46	42	40	41	29	37	29	30	24	30	28	35	36	33	34
Mathematics, other	39	34	34	28	21	30	18	22	28	20	25	21	24	19	28
COMPUTER/INFORMATION SCIENCES ..	-	-	22	77	153	143	162	136	174	163	177	193	229	265	317
Computer sciences	-	-	22	77	153	143	162	136	162	142	141	171	197	227	260
Information sci/systems(2) .	-	-	-	-	-	-	-	-	12	21	36	22	32	38	57

See footnotes at end of table.

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Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

Field of study	Year of doctorate														
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
U.S. CITIZENS AND NON-U.S. PERMANENT RESIDENTS															
WHITE															
AGRICULTURAL & BIOLOGICAL SCI ..	3311	3276	3198	3188	3333	3511	3566	3678	3608	3646	3571	3445	3313	3480	3457
Agricultural sciences	561	487	458	486	503	539	551	616	613	602	659	557	554	518	570
Agric business & mgmt (19) .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Agronomy	72	70	62	75	66	77	105	91	74	68	90	85	81	66	73
Animal breeding/genetics(20)	17	14	16	17	20	18	13	19	17	17	17	13	12	13	12
Animal nutrition(21)	-	-	-	-	-	-	-	-	43	46	50	46	59	34	47
Animal sci/nutrition(21) ...	79	83	68	54	64	76	77	90	-	-	-	-	-	-	-
Dairy science(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	8	8
Poultry science(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	4	4
Animal sciences, other(21) .	-	-	-	-	-	-	-	-	53	52	55	54	47	50	58
Fish/wildlife(22)	51	46	57	48	57	58	58	56	-	-	-	-	-	-	-
Fisheries science(22)	-	-	-	-	-	-	-	-	23	34	33	19	23	23	17
Wildlife management(22)	-	-	-	-	-	-	-	-	23	26	32	17	21	2	-
Wildlife/range mgmt(22)	-	-	-	-	-	-	-	-	-	-	-	-	-	26	41
Food sciences(23)	52	54	50	55	59	49	39	55	62	51	64	47	47	2	1
Food engineering(23)	-	-	-	-	-	-	-	-	-	-	-	-	-	3	1
Food sciences, other(23) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	38	59
Forestry science(24)	62	56	47	53	58	60	63	55	62	79	76	55	67	14	-
Forest biology(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	17	16
Forest engineering(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-
Forest management(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	10	16
Wood science(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	4	5
Renewable natrl resrces(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	3	6
Forestry&relatd sci, oth(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	13	25
Horticulture science	50	26	33	36	44	41	40	61	41	48	42	35	42	32	46
Plant breeding/genetics(25).	-	-	-	-	-	-	-	-	50	53	56	41	47	46	37
Plant pathology(25)	-	-	-	-	-	-	-	-	65	28	58	47	43	26	28
Phytopathology(25)	67	52	53	54	57	73	65	86	-	-	-	-	-	-	-
Plant protectn-pest mgmt(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	4
Plant sciences, other(25) ..	-	-	-	-	-	-	-	-	9	12	11	15	7	12	6
Soil sciences(26)	58	33	27	54	27	37	39	49	47	50	49	54	34	10	-
Soil chem/microbio(26)	-	-	-	-	-	-	-	-	-	-	-	-	-	22	17
Soil sciences, other(26) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	23	33
Agriculture, general	1	4	-	1	1	2	1	1	3	1	1	2	1	-	3
Agriculture, other	52	49	45	39	50	48	51	53	41	37	25	27	23	14	6
Biological sciences	2750	2789	2740	2702	2830	2972	3015	3062	2995	3044	2912	2888	2759	2962	2887
Anatomy	99	117	94	124	124	125	139	131	88	83	112	70	72	73	60
Biochemistry	477	462	471	442	458	517	510	524	515	471	441	419	390	412	446
Biometrics/biostat	31	32	37	31	32	31	36	46	31	30	25	20	22	29	26
Biophysics	75	92	95	78	91	73	78	64	61	65	54	50	54	62	53
Botany, other(27)	-	-	-	-	-	-	-	-	101	103	88	95	79	86	86
Botany(27)	130	148	133	112	110	116	116	117	-	-	-	-	-	-	-
Cell biology(28)	-	-	-	-	-	-	-	-	97	99	81	99	111	91	104
Cytology(28)	31	35	31	28	28	33	38	33	-	-	-	-	-	-	-
Ecology	126	125	143	157	148	145	170	155	160	182	172	151	129	127	128
Embryology	23	9	18	14	8	14	15	8	11	10	15	9	3	6	9
Endocrinology(2)	-	-	-	-	-	-	-	-	21	21	12	10	14	13	12
Entomology	123	109	105	109	112	111	97	114	102	103	128	124	83	97	103
Human/animal genetics(29) ..	-	-	-	-	-	-	-	-	82	67	78	76	87	83	76
Plant genetics(29)	-	-	-	-	-	-	-	-	10	17	20	16	22	13	9
Genetics(29)	112	92	114	98	110	118	128	144	-	-	-	-	-	-	-
Human/animal pathology(30) .	-	-	-	-	-	-	-	-	65	66	90	66	89	84	75
Plant pathology(30)	-	-	-	-	-	-	-	-	22	21	24	18	23	23	19
Pathology(30)	47	73	71	78	67	84	77	78	-	-	-	-	-	-	-
Human/animal pharmacol	135	159	164	163	175	204	227	221	184	184	179	186	171	191	171
Human/animal physiol(31) ...	-	-	-	-	-	-	-	-	206	193	189	193	186	165	204
Animal physiology(31)	281	246	263	249	264	281	283	252	-	-	-	-	-	-	-
Plant physiology(31)	47	45	27	30	39	39	49	45	50	53	43	40	41	46	33
Hydrobiology	7	13	14	3	8	-	-	-	-	-	-	-	-	-	-
Immunology	57	69	81	74	113	95	123	118	124	108	98	111	102	143	117
Microbiology(32)	-	-	-	-	-	-	-	-	247	271	222	240	211	258	233
Bacteriology(32)	-	-	-	-	-	-	-	-	7	9	13	8	10	5	10
Microbiology/bacteriol(32) .	290	283	251	256	270	283	270	241	-	-	-	-	-	-	-
Molecular biology	127	124	101	133	107	138	155	175	184	237	218	237	213	267	281
Neurosciences	-	-	-	-	-	-	-	105	110	120	133	101	125	124	142
Nutritional sciences(33) ...	-	54	43	50	74	66	61	77	75	74	72	80	93	75	74
Parasitology	13	17	14	9	11	16	12	9	7	23	14	19	12	13	12
Toxicology(2)	-	-	-	-	-	-	-	-	52	86	83	94	94	86	92
Zoology, other(34)	-	-	-	-	-	-	-	-	169	137	115	127	106	129	104
Zoology(34)	233	223	219	203	210	199	168	166	-	-	-	-	-	-	-
Biological sci, general	134	125	134	126	135	153	139	138	125	122	128	134	137	155	133
Biological sci, other	152	137	117	135	136	131	124	101	89	89	65	95	80	106	75

See footnotes at end of table.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

Field of study	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
	Year of doctorate														
U.S. CITIZENS AND NON-U.S. PERMANENT RESIDENTS															
WHITE															
SOCIAL SCIENCES	2674	2647	2419	2284	2138	2145	2065	1972	2020	1868	1797	1861	1736	1718	1672
Agricultural economics	91	85	79	79	63	88	84	91	77	68	72	77	64	78	74
Anthropology	313	338	315	309	289	301	284	268	306	257	260	295	255	240	234
Area studies	22	18	14	15	20	16	10	14	12	11	9	7	10	10	8
Criminology(35)	-	-	-	-	-	26	33	30	38	29	27	21	18	22	23
Demography(2)	-	-	-	-	-	-	-	-	13	8	9	9	10	7	12
Econometrics	16	16	12	12	15	13	9	11	11	14	15	11	10	7	7
Economics	602	567	522	485	464	444	477	410	478	419	406	449	402	392	400
Geography	148	124	112	112	95	88	71	65	83	75	77	71	72	84	62
History of science(36)	24	24	27	23	19	19	19	24	12	20	17	14	21	21	14
International relations	84	83	66	59	57	47	55	36	45	47	46	40	47	41	47
Linguistics	133	105	118	102	87	110	105	109	94	83	99	96	99	77	95
Pol sci/government(37)	-	-	-	-	-	-	-	-	266	266	236	247	243	215	243
Political science(37)	1	479	448	453	364	382	305	311	-	-	-	-	-	-	-
Pol sci, public admin(37)	563	25	-	-	-	-	-	-	-	-	-	-	-	-	-
Public policy studies(2)	-	-	-	-	-	-	-	-	49	41	55	55	52	49	56
Sociology	504	566	556	454	465	453	446	414	377	374	323	329	285	282	240
Statistics	20	18	15	19	9	17	17	16	16	13	17	23	15	17	18
Urban studies(38)	45	66	45	48	53	44	45	50	31	47	37	23	31	41	24
Social sciences, general	27	28	16	17	23	22	14	23	12	7	7	19	15	10	14
Social sciences, other	81	105	74	97	115	75	91	100	100	89	85	75	87	125	101
PSYCHOLOGY	2362	2541	2541	2524	2550	2562	2849	2638	2783	2683	2590	2547	2516	2443	2374
Clinical	741	810	837	882	870	928	1091	1014	1044	1015	1004	952	964	875	895
Cognitive(2)	-	-	-	-	-	-	-	-	56	64	69	60	67	63	65
Comparative(39)	18	24	21	19	17	7	10	10	9	13	11	14	9	6	6
Counseling(40)	202	243	235	240	274	262	307	302	381	405	380	400	420	421	431
Developmental(41)	164	173	186	187	194	175	188	166	191	177	151	163	173	155	130
Educational	114	109	120	119	132	111	159	117	131	172	108	91	72	84	76
Experimental(39)	318	321	299	270	258	272	258	213	178	153	147	128	133	114	126
Indust/organizational(42)	54	62	72	68	80	56	75	78	82	95	93	98	94	104	89
Physiological(39)	109	116	116	104	95	94	92	81	80	62	70	65	56	70	55
Quantitative(2)	-	-	-	-	-	-	-	-	13	16	12	21	12	11	6
Personality	53	52	56	31	31	35	43	30	30	22	18	14	21	15	21
Psychometrics	13	22	15	11	19	18	24	8	10	6	7	11	8	7	6
School	93	134	134	112	112	167	120	153	114	74	80	102	83	101	86
Social	190	168	177	170	182	165	153	145	148	128	140	110	108	121	96
Psychology, general	147	153	156	188	122	120	168	151	181	147	151	169	163	196	173
Psychology, other	146	154	117	123	164	152	161	170	135	134	149	149	133	100	113
TOTAL, ENGINEERING	1651	1524	1429	1169	1157	1143	1093	1100	1128	1157	1188	1354	1457	1653	1714
Aeronaut/astronautical(43)	94	81	59	44	29	33	46	32	40	47	53	40	59	66	70
Agricultural	34	22	16	21	20	23	17	22	20	25	21	25	39	38	48
Bioengineering/biomed(44)	62	60	55	51	50	47	46	47	47	44	45	43	45	68	72
Ceramic	15	12	23	20	14	12	13	11	13	15	11	15	25	13	16
Chemical	178	143	150	120	131	116	122	123	152	150	190	205	256	299	320
Civil	125	121	120	87	90	88	100	106	118	128	114	134	142	164	168
Communications(2)	-	-	-	-	-	-	-	-	11	7	12	9	6	9	13
Computer	61	57	73	38	32	28	30	22	36	26	12	30	21	21	36
Electrical/electronics(45)	-	-	-	-	-	-	-	-	175	229	234	280	256	332	352
Electrical(45)	293	287	237	191	215	197	182	180	30	2	1	-	-	-	-
Electronics(45)	43	46	44	26	30	37	41	38	9	-	-	-	-	-	-
Engineering mechanics	78	59	56	40	34	39	34	53	28	41	27	38	44	34	35
Engineering physics(46)	11	17	15	12	12	11	12	11	6	7	6	10	13	5	10
Engineering science(2)	-	-	-	-	-	-	-	-	14	9	13	15	12	15	10
Environmental health eng(47)	46	44	47	40	45	51	46	36	28	33	16	18	16	19	22
Fuel tech/petro eng(8)	2	2	1	-	2	-	-	-	-	-	-	-	-	-	-
Industrial	66	37	37	32	41	35	33	37	33	27	28	38	47	30	44
Materials science	74	54	61	69	53	66	51	58	64	62	81	74	100	111	100
Mechanical	177	179	154	143	139	128	111	149	118	113	149	172	185	219	204
Metallurgical(48)	61	51	53	40	40	48	29	32	31	27	37	24	31	35	34
Mining/mineral(49)	4	2	1	4	2	1	5	4	8	4	7	8	10	5	11
Naval arch/marine engin(2)	-	-	-	-	-	-	-	-	-	3	2	6	4	2	2
Nuclear(46)	59	81	63	64	54	55	55	52	35	58	35	37	28	52	31
Ocean(2)	-	-	-	-	-	-	-	-	4	4	5	8	4	5	7
Operations research	42	57	48	43	36	38	38	22	19	31	21	28	26	23	27
Petroleum(50)	7	7	5	3	5	10	3	7	3	6	6	5	5	9	7
Polymer(2)	-	-	-	-	-	-	-	-	7	7	15	17	5	9	17
Systems(51)	48	43	40	32	41	34	32	20	26	17	18	14	21	19	14
Engineering, general	17	17	21	14	15	18	12	8	9	5	3	18	24	20	16
Engineering, other	54	45	50	35	27	28	35	30	44	30	26	43	33	31	28
TOTAL, NON-SCI/ENGINEERING(52)	11512	11736	10996	10321	10273	10315	10082	9813	9767	9618	9292	9210	9193	9126	9135
TOTAL, ALL FIELDS	24961	24943	23654	22342	22396	22461	22470	22143	22245	21864	21295	21224	21113	21443	21354

See footnotes at end of table.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

Field of study	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
	Year of doctorate														
U.S. CITIZENS AND NON-U.S. PERMANENT RESIDENTS OTHER/UNKNOWN RACE															
TOTAL, SCIENCE/ENGINEERING	845	747	678	902	891	791	632	408	413	382	376	323	350	326	306
TOTAL, SCIENCES	668	638	595	804	784	706	578	348	365	328	308	278	288	263	250
PHYSICAL SCIENCES	149	137	148	171	179	164	142	66	74	73	68	73	59	70	48
Physics/astronomy	67	81	82	85	90	82	69	30	35	25	33	24	25	35	23
Acoustics	1	-	2	1	-	-	1	1	-	-	-	1	-	-	-
Astronomy(1)	1	4	7	8	5	3	5	1	2	-	3	3	-	4	2
Astrophysics(1)	3	3	3	4	5	6	2	4	4	2	2	1	1	-	-
Atomic/molecular	3	8	4	6	5	12	4	-	2	2	1	2	3	1	2
Electromagnetism(3)	-	2	1	-	-	-	-	-	-	-	-	-	-	-	-
Elementary particle	3	5	3	12	11	7	11	3	5	1	1	3	5	4	1
Fluids	-	1	-	-	1	2	-	-	1	1	1	-	2	-	-
Nuclear(5)	5	-	7	8	6	4	7	-	3	2	6	1	1	3	2
Optics	3	2	1	-	1	-	3	-	-	1	-	-	-	1	3
Plasma	3	4	4	6	4	2	4	2	2	1	1	3	-	2	1
Polymer(2)	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1
Solid state	16	19	18	13	19	13	12	4	5	4	5	3	4	6	5
Thermal(7)	-	1	-	1	1	-	-	-	-	-	-	-	-	-	-
Physics, general	20	24	27	19	24	29	13	10	10	9	9	6	5	12	5
Physics, other	9	8	5	7	8	4	7	5	1	2	4	1	3	2	1
Chemistry	82	56	66	86	89	82	73	36	39	48	35	49	34	35	25
Agricultural/food	-	1	-	-	2	-	-	-	-	-	-	-	-	-	-
Analytical	4	3	6	9	9	9	9	1	3	4	3	3	2	2	5
Inorganic	5	6	5	13	11	5	8	6	6	7	5	8	3	3	3
Nuclear	2	-	1	1	3	-	1	-	1	1	-	2	-	-	-
Organic	22	16	15	22	24	18	11	15	7	8	5	16	11	12	6
Pharmaceutical	5	3	1	2	3	2	2	-	-	3	2	2	-	1	1
Physical	15	8	14	15	14	13	14	4	5	10	9	5	8	7	1
Polymer	-	-	1	2	3	5	-	-	-	1	-	2	3	2	-
Theoretical	1	1	1	1	-	2	-	-	1	2	1	1	-	-	1
Chemistry, general	27	15	19	19	12	25	26	8	12	11	8	10	4	6	8
Chemistry, other	1	3	3	2	8	3	2	2	4	1	2	-	3	2	-
EARTH, ATMOS, & MARINE SCI	29	28	28	40	32	24	16	10	20	14	12	11	17	14	8
Applied geology(8)	1	1	1	2	1	1	-	-	-	-	1	-	-	-	-
Atmos/meteorol sci, gen(2)	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-
Atmos/meteorol sci, other	-	-	2	1	2	1	-	1	1	-	-	-	2	-	1
Atmospheric dynamics	-	1	-	2	2	-	-	-	-	-	-	-	-	-	-
Atmospheric phys/chem	-	1	-	-	-	1	-	1	-	1	-	-	-	-	-
Environmental sciences(9)	2	2	3	3	2	2	-	-	-	1	-	-	-	1	-
Geochemistry(10)	4	2	4	3	2	-	1	-	2	-	1	2	2	3	-
Geology(11)	-	-	-	-	-	-	-	-	5	3	4	3	2	3	1
Structural geology(11)	-	1	2	1	-	1	-	-	-	-	-	-	-	-	-
Geomorph/glacial geology	2	1	-	1	-	-	-	-	-	-	-	-	-	-	-
Geophysics/seismology(12)	-	4	-	1	6	1	3	1	1	3	1	-	1	2	2
Geophysics(12)	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrology/water res(13)	-	-	1	2	4	1	-	1	-	-	-	1	-	-	-
Marine sciences(2)	-	-	-	-	-	-	-	-	-	1	-	1	4	-	-
Marine sciences, other(14)	-	-	1	1	1	1	-	-	-	-	-	-	-	-	-
Meteorology(15)	3	-	-	-	-	-	-	-	-	1	-	-	1	1	-
Minerology, petrology(10)	1	2	2	4	2	2	1	1	1	1	1	-	-	-	1
Oceanography	4	6	5	6	3	1	4	1	1	-	2	2	1	1	2
Paleontology	1	3	-	-	1	-	1	1	2	2	-	-	-	-	-
Stratigraphy, sediment	1	1	1	3	2	2	-	-	1	-	-	-	2	1	1
Geological sciences, gen(16)	-	-	-	-	-	-	-	-	2	1	-	1	1	-	-
Geological sciences, oth(16)	-	-	-	-	-	-	-	-	2	-	-	-	-	1	-
Earth sciences, general(16)	-	2	3	8	3	9	5	1	-	-	-	-	-	-	-
Earth sciences, other(16)	4	1	3	2	1	1	1	2	-	-	-	-	-	-	-
Physical sciences, other(2)	-	-	-	-	-	-	-	-	1	-	1	1	1	1	-
MATHEMATICS	43	42	32	41	31	27	22	17	18	15	16	12	14	11	16
Algebra	-	2	1	2	3	3	1	1	1	1	2	3	2	-	3
Analysis/funct analysis(17)	5	1	3	6	7	3	1	3	2	1	2	1	2	2	2
Applied mathematics	6	3	4	3	3	6	5	4	1	2	2	5	-	1	4
Computing theory	3	5	5	5	-	-	-	-	1	2	1	-	-	-	-
Geometry	1	2	1	4	1	-	1	-	-	-	1	1	-	1	1
Logic	2	1	1	1	1	3	-	-	1	-	1	-	-	1	1
Number theory	1	-	-	-	1	1	1	2	1	1	1	-	-	-	-
Operations research	2	3	1	-	2	2	-	1	-	1	-	1	1	1	2
Probability/math stat (18)	3	5	2	4	4	3	3	2	3	3	-	1	2	3	1
Topology	5	3	3	5	2	1	4	2	1	2	-	-	2	1	-
Mathematics, general	14	15	10	11	6	4	5	1	6	1	4	-	5	1	1
Mathematics, other	1	2	1	-	1	1	1	1	1	1	2	-	-	-	1
COMPUTER/INFORMATION SCIENCES	-	-	3	9	9	16	8	4	9	6	10	11	11	12	18
Computer sciences	-	-	3	9	9	16	8	4	8	4	7	9	10	10	16
Information sci/systems(2)	-	-	-	-	-	-	-	-	1	2	3	2	1	2	2

See footnotes at end of table.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

Field of study	Year of doctorate														
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
U.S. CITIZENS AND NON-U.S. PERMANENT RESIDENTS															
OTHER/UNKNOWN RACE															
AGRICULTURAL & BIOLOGICAL SCI ..	144	160	138	219	223	226	179	124	92	104	78	70	90	71	85
Agricultural sciences	17	16	15	28	32	25	26	14	20	11	11	15	10	15	24
Agronomy	1	3	4	5	7	5	2	4	3	1	-	1	1	2	5
Animal breeding/genetics(20)	-	-	1	-	-	1	1	-	-	1	1	1	1	-	-
Animal nutrition(21)	-	-	-	-	-	-	-	-	-	-	1	1	1	-	1
Animal sci/nutrition(21) ...	5	4	2	3	8	6	3	4	-	-	-	-	-	-	-
Poultry science(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Animal sciences, other(21) .	-	-	-	-	-	-	-	-	1	1	5	-	-	3	1
Fish/wildlife(22)	2	3	1	1	3	1	3	1	-	-	-	-	-	-	-
Fisheries science(22)	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1
Wildlife management(22)	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Food sciences(23)	4	2	2	4	2	3	4	-	8	1	-	1	2	-	-
Food sciences, other(23) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	3	2
Forestry science(24)	1	-	2	7	3	1	1	2	2	2	2	2	1	-	-
Forest biology(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Forest management(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Renewable natrl resrces(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Forestry&relatd sci, oth(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Horticulture science	-	1	2	2	2	1	2	1	2	-	-	1	1	-	2
Plant breeding/genetics(25).	-	-	-	-	-	-	-	-	1	1	-	2	1	1	2
Plant pathology(25)	-	-	-	-	-	-	-	-	1	1	1	2	1	-	1
Phytopathology(25)	1	1	-	4	1	3	2	1	-	-	-	-	-	-	-
Plant protectn-pest mgmt(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Plant sciences, other(25) ..	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Soil sciences(26)	2	-	1	1	4	3	3	-	1	2	-	3	-	-	-
Soil chem/microbio(26)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Soil sciences, other(26) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	4	1
Agriculture, general	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Agriculture, other	1	2	-	-	2	1	5	1	-	-	1	-	1	1	-
Biological sciences	127	144	123	191	191	201	153	110	72	93	67	55	80	56	61
Anatomy	3	7	4	5	8	6	3	5	4	1	1	-	3	1	1
Biochemistry	24	19	20	26	27	43	23	15	3	11	9	9	10	6	11
Biometrics/biostat	1	1	1	3	2	-	2	-	-	1	2	1	1	-	2
Biophysics	6	5	8	8	12	10	3	4	2	5	-	3	1	3	2
Botany, other(27)	-	-	-	-	-	-	-	-	1	5	2	1	-	-	1
Botany(27)	4	5	5	4	7	5	6	3	-	-	-	-	-	-	-
Cell biology(28)	-	-	-	-	-	-	-	-	3	3	2	2	-	2	3
Cytology(28)	1	5	1	1	5	4	2	-	-	-	-	-	-	-	-
Ecology	1	6	6	1	12	8	8	6	3	4	1	1	3	1	2
Embryology	2	-	-	-	2	1	-	-	-	-	-	-	1	-	-
Endocrinology(2)	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-
Entomology	7	4	6	1	3	6	5	6	1	5	2	2	1	-	-
Human/animal genetics(29) ..	-	-	-	-	-	-	-	-	1	1	5	2	2	2	1
Plant genetics(29)	-	-	-	-	-	-	-	-	-	1	1	-	-	-	1
Genetics(29)	2	4	4	7	3	4	5	4	-	-	-	-	-	-	-
Human/animal pathology(30) .	-	-	-	-	-	-	-	-	4	1	-	1	3	2	2
Plant pathology(30)	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-
Pathology(30)	2	7	6	5	4	6	4	-	-	-	-	-	-	-	-
Human/animal pharmacol	4	10	4	19	14	14	12	13	1	5	7	5	6	4	3
Human/animal physiol(31) ...	-	-	-	-	-	-	-	-	7	6	3	4	7	5	6
Animal physiology(31)	12	6	10	19	10	28	11	6	-	-	-	-	-	-	-
Plant physiology(31)	1	2	2	3	1	2	4	-	1	3	1	-	4	2	2
Hydrobiology	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Immunology	3	4	2	3	8	9	3	4	4	2	5	1	4	2	1
Microbiology(32)	-	-	-	-	-	-	-	-	2	7	1	3	7	5	2
Microbiology/bacteriol(32) .	12	14	13	23	21	16	16	13	-	-	-	-	-	-	-
Molecular biology	2	4	5	13	9	12	10	2	10	2	4	4	10	3	7
Neurosciences	-	-	-	-	-	-	-	3	6	3	1	5	3	4	3
Nutritional sciences(33) ...	-	2	3	7	4	2	8	1	1	4	5	3	1	-	2
Parasitology	-	-	-	-	1	-	1	-	-	1	-	-	-	-	-
Toxicology(2)	-	-	-	-	-	-	-	-	-	3	-	1	1	3	2
Zoology, other(34)	-	-	-	-	-	-	-	-	1	4	1	1	4	3	1
Zoology(34)	11	10	10	7	19	8	5	4	-	-	-	-	-	-	-
Biological sci, general	14	23	11	26	11	8	16	14	7	6	13	5	6	7	5
Biological sci, other	14	6	2	10	7	9	6	7	5	9	1	1	2	1	1

See footnotes at end of table.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

Field of study	Year of doctorate														
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
U.S. CITIZENS AND NON-U.S. PERMANENT RESIDENTS OTHER/UNKNOWN RACE															
SOCIAL SCIENCES	194	183	143	172	175	131	131	78	86	67	78	65	58	52	46
Agricultural economics	4	7	2	2	6	7	5	4	3	4	4	2	3	2	4
Anthropology	27	24	22	27	34	23	25	10	10	10	16	9	14	9	11
Area studies	5	2	2	-	-	1	1	1	1	2	1	-	-	-	2
Criminology(35)	-	-	-	-	-	-	-	1	1	1	-	-	-	1	1
Demography(2)	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Econometrics	-	3	3	1	1	1	-	-	-	1	-	-	-	-	-
Economics	41	42	28	38	50	30	37	16	15	11	20	18	12	10	11
Geography	5	4	10	9	5	6	6	4	5	-	1	1	2	3	1
History of science(36)	2	5	1	-	6	2	3	1	-	1	1	-	-	-	-
International relations	6	5	5	4	-	4	3	3	4	4	5	2	2	-	-
Linguistics	16	7	6	13	5	7	5	6	4	5	4	3	3	2	2
Pol sci/government(37)	-	-	-	-	-	-	-	-	18	19	17	10	7	10	6
Political science(37)	-	29	28	36	26	22	20	16	-	-	-	-	-	-	-
Pol sci, public admin(37)	41	5	-	-	-	-	-	-	-	-	-	-	-	-	-
Public policy studies(2)	-	-	-	-	-	-	-	-	2	1	-	1	2	2	-
Sociology	31	32	29	30	29	20	18	12	12	3	6	12	8	7	4
Statistics	1	2	1	1	1	-	1	-	1	1	-	-	-	-	1
Urban studies(38)	4	3	1	2	2	4	2	1	5	1	1	3	3	2	-
Social sciences, general	2	2	-	4	2	1	-	-	-	-	1	1	1	-	-
Social sciences, other	9	11	5	5	8	3	5	3	5	3	-	3	1	4	3
PSYCHOLOGY	109	88	103	152	135	118	80	49	66	49	46	36	39	33	29
Clinical	12	18	15	27	43	31	29	12	25	14	16	12	12	9	10
Cognitive(2)	-	-	-	-	-	-	-	-	1	-	-	2	1	4	1
Comparative(39)	2	1	-	-	2	1	-	-	1	-	-	-	-	-	-
Counseling(40)	6	1	10	13	12	10	3	3	6	4	4	2	6	7	4
Developmental(41)	3	1	6	8	9	9	5	-	2	3	2	1	5	-	-
Educational	5	5	1	7	8	6	5	5	6	3	1	1	1	1	-
Experimental(39)	8	12	13	10	14	12	3	1	4	1	2	2	1	-	1
Indust/organizational(42)	2	1	1	1	2	3	3	-	1	-	2	-	2	2	3
Physiological(39)	1	5	5	5	-	3	1	-	-	2	1	4	2	2	-
Personality	5	1	2	4	4	4	1	3	-	-	1	-	-	-	-
Psychometrics	2	1	-	1	1	-	-	-	-	-	1	-	-	-	-
School	4	2	2	6	1	2	4	1	1	1	2	1	-	-	2
Social	7	8	6	11	4	2	3	2	2	4	-	1	-	2	4
Psychology, general	44	30	37	50	25	26	22	17	15	11	12	9	7	3	4
Psychology, other	8	2	5	9	10	9	1	5	2	6	2	1	2	3	-
TOTAL, ENGINEERING	177	109	83	98	107	85	54	60	48	54	68	45	62	63	56
Aeronaut/astronautical(43)	8	4	1	1	4	2	4	1	3	2	2	1	1	-	1
Agricultural	2	-	-	-	2	3	1	-	-	2	-	2	1	2	2
Bioengineering/biomed(44)	5	1	4	5	2	7	4	2	5	2	2	1	2	4	-
Ceramic	2	1	-	-	2	1	-	-	-	-	1	-	1	-	-
Chemical	22	17	12	7	9	8	4	7	7	8	13	4	8	9	8
Civil	20	10	9	3	5	5	5	3	3	3	3	3	5	9	6
Communications(2)	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-
Computer	5	8	2	2	3	-	-	3	-	-	-	-	3	2	1
Electrical/electronics(45)	-	-	-	-	-	-	-	-	9	13	18	5	17	14	17
Electrical(45)	29	19	20	24	25	19	13	15	-	-	-	-	-	-	-
Electronics(45)	4	3	2	7	3	5	1	3	-	-	-	-	-	-	-
Engineering mechanics	12	3	2	4	7	2	3	-	-	1	2	3	-	1	3
Engineering physics(46)	1	-	1	-	-	1	-	-	1	-	-	-	-	-	-
Engineering science(2)	-	-	-	-	-	-	-	-	1	1	-	1	-	-	1
Environmental health eng(47)	2	2	2	3	5	1	1	-	-	-	-	-	-	-	-
Industrial	2	2	3	3	4	2	2	-	1	-	2	-	3	1	1
Materials science	6	4	5	4	5	5	4	2	-	8	4	4	1	4	3
Mechanical	21	17	4	8	13	5	4	12	5	3	9	12	8	7	7
Metallurgical(48)	10	10	5	10	2	4	-	3	2	1	1	-	4	3	1
Mining/mineral(49)	1	-	-	-	-	-	-	1	1	1	-	1	-	-	-
Naval arch/marine engin(2)	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Nuclear(46)	5	1	2	5	3	3	4	2	2	3	1	1	1	-	-
Ocean(2)	-	-	-	-	-	-	-	-	-	-	-	1	1	1	-
Operations research	8	2	1	5	1	2	1	-	-	-	1	1	-	-	1
Petroleum(50)	1	-	1	-	1	1	-	3	1	-	-	-	-	1	-
Polymer(2)	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-
Systems(51)	4	1	-	-	4	1	2	-	-	-	3	-	-	2	2
Engineering, general	3	2	1	5	-	5	-	2	2	2	1	2	2	-	-
Engineering, other	4	2	6	2	7	3	1	1	4	2	5	1	4	3	2
TOTAL, NON-SCI/ENGINEERING(52)	534	546	511	655	661	492	446	230	238	250	179	182	197	138	143
TOTAL, ALL FIELDS	1379	1293	1189	1557	1552	1283	1078	638	651	632	555	505	547	464	449
NON-U.S. CITIZENS, PERMANENT RESIDENTS NATIVE AMERICAN															
TOTAL, SCIENCE/ENGINEERING	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-
TOTAL, SCIENCES	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
AGRICULTURAL & BIOLOGICAL SCI	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Biological sciences	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Human/animal pharmacol	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL, ENGINEERING	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Engineering, other	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
TOTAL, ALL FIELDS	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

Field of study	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
	Year of doctorate														
NON-U.S. CITIZENS, PERMANENT RESIDENTS ASIAN															
TOTAL, SCIENCE/ENGINEERING	619	553	495	556	571	541	491	438	433	390	435	410	478	463	489
TOTAL, SCIENCES	405	333	313	347	334	336	283	264	252	235	244	228	286	271	303
PHYSICAL SCIENCES	135	128	121	126	116	110	103	75	70	67	74	71	76	71	79
Physics/astronomy	56	33	43	38	43	32	36	22	26	20	19	18	17	33	26
Acoustics	-	-	-	-	-	2	2	-	-	1	-	-	-	1	-
Astronomy(1)	-	-	2	-	2	2	-	-	-	-	-	-	-	2	2
Astrophysics(1)	2	1	1	2	-	1	1	1	1	-	1	1	-	1	-
Atomic/molecular	3	4	2	2	1	2	1	5	6	2	-	-	-	2	4
Electromagnetism(3)	1	2	2	-	-	-	-	-	-	-	-	-	-	-	-
Elementary particle	3	1	3	1	4	5	3	1	3	1	1	-	1	5	2
Fluids	-	1	1	1	-	-	1	1	-	-	-	-	-	-	1
Nuclear(5)	7	-	4	2	3	3	1	2	1	2	2	2	2	1	2
Optics	2	1	1	2	1	4	3	-	2	2	1	1	-	4	1
Plasma	4	3	6	1	3	1	1	1	-	-	1	-	1	3	-
Polymer(2)	-	-	-	-	-	-	-	-	1	-	3	1	-	1	-
Solid state	25	12	9	15	18	8	8	5	6	8	6	6	3	5	10
Thermal(7)	-	-	2	-	-	-	1	-	-	-	-	-	-	-	-
Physics, general	6	5	6	8	8	3	11	4	2	3	4	6	7	6	3
Physics, other	3	3	4	4	3	1	3	2	4	1	-	1	3	2	1
Chemistry	79	95	78	88	73	78	67	53	44	47	55	53	59	38	53
Agricultural/food	1	2	-	1	-	-	-	-	-	-	-	-	-	-	-
Analytical	1	3	5	8	8	9	5	3	6	3	4	1	7	7	4
Inorganic	6	11	2	6	5	6	3	3	5	3	5	3	6	4	4
Nuclear	-	2	1	2	1	-	-	1	-	-	-	-	-	-	-
Organic	25	29	26	24	18	29	24	13	14	17	25	19	11	6	19
Pharmaceutical	7	9	7	11	7	6	3	5	6	2	4	6	3	2	1
Physical	23	20	19	18	16	13	9	15	3	6	2	10	9	4	12
Polymer	4	7	4	9	4	11	12	5	5	7	9	5	7	7	5
Theoretical	3	-	1	-	-	-	-	-	1	-	2	1	1	-	-
Chemistry, general	6	8	6	7	10	4	4	5	3	6	2	4	13	6	8
Chemistry, other	3	4	7	2	4	-	7	3	1	3	2	4	2	2	-
EARTH, ATMOS, & MARINE SCI	15	19	13	14	17	15	10	15	18	11	13	8	9	7	12
Applied geology(8)	-	1	-	-	1	-	-	-	1	-	-	-	-	-	-
Atmos/meteorol sci, gen(2) .	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Atmos/meteorol sci, other ..	-	3	2	4	1	2	1	3	1	-	-	-	-	1	1
Atmospheric dynamics	-	-	1	1	4	1	1	1	2	2	2	-	-	1	2
Atmospheric phys/chem	-	1	-	3	-	2	-	-	-	-	-	1	-	-	2
Environmental sciences(9) ..	2	1	1	1	1	1	1	-	3	1	1	-	1	2	2
Geochemistry(10)	1	2	3	-	1	-	1	1	1	2	-	2	-	1	-
Geology(11)	-	-	-	-	-	-	-	-	-	1	1	1	3	-	-
Geomorph/glacial geology ...	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Geophysics/seismology(12) ..	-	-	-	-	4	3	4	5	3	2	3	1	3	1	-
Geophysics(12)	6	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrology/water res(13)	-	-	-	3	-	1	-	1	-	-	2	1	-	-	-
Marine sciences(2)	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Marine sciences, other(14) .	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-
Meteorology(15)	1	4	-	-	-	-	-	-	1	-	1	1	-	-	-
Minerology, petrology(10) ..	-	-	1	-	-	1	-	-	-	-	-	-	1	-	-
Oceanography	3	2	4	-	2	2	1	1	2	1	1	1	-	-	3
Paleontology	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Stratigraphy, sediment	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Geological sciences, gen(16)	-	-	-	-	-	-	-	-	2	1	-	-	-	-	-
Geological sciences, oth(16)	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Earth sciences, general(16).	1	1	-	1	1	1	1	2	-	-	-	-	-	-	-
Earth sciences, other(16) ..	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-
Physical sciences, other(2).	-	-	-	-	-	-	-	-	-	1	2	-	-	1	1
MATHEMATICS	51	34	28	28	28	30	20	21	21	21	19	14	23	16	11
Algebra	4	3	1	-	3	-	2	1	-	1	1	-	-	-	-
Analysis/funct analysis(17).	9	1	2	3	5	2	2	4	1	1	1	3	1	5	1
Applied mathematics	4	2	7	2	1	4	3	4	5	4	1	1	6	2	1
Computing theory	10	6	2	-	-	-	1	-	-	1	-	-	1	-	-
Geometry	1	-	1	-	-	2	1	1	1	-	1	-	-	1	2
Logic	-	-	-	-	-	1	-	1	-	-	-	-	1	-	-
Number theory	2	-	-	1	-	-	1	-	2	-	-	-	-	2	-
Operations research	1	3	3	1	1	2	1	1	-	-	1	4	2	1	-
Probability/math stat (18) .	10	7	11	11	12	15	4	7	9	10	12	1	8	4	5
Topology	3	3	-	1	2	2	-	-	-	1	1	1	-	-	1
Mathematics, general	6	4	1	5	4	2	3	1	-	2	1	2	2	1	1
Mathematics, other	1	5	-	4	-	-	2	1	3	1	-	2	2	-	-
COMPUTER/INFORMATION SCIENCES ..	-	-	-	2	6	7	12	10	14	8	15	25	16	24	34
Computer sciences	-	-	-	2	6	7	12	10	11	6	14	21	14	19	25
Information sci/systems(2) .	-	-	-	-	-	-	-	-	3	2	1	4	2	5	9

See footnotes at end of table.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

	Year of doctorate														
Field of study	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
NON-U.S. CITIZENS, PERMANENT RESIDENTS															
ASIAN															
AGRICULTURAL & BIOLOGICAL SCI ..	140	99	102	110	100	105	83	78	81	68	61	53	85	91	94
Agricultural sciences	42	17	12	25	17	19	17	15	18	13	16	10	21	21	16
Agronomy	5	1	3	2	1	2	1	3	-	3	-	-	3	1	3
Animal breeding/genetics(20)	-	-	-	-	1	1	1	-	1	-	-	-	-	-	-
Animal nutrition(21)	-	-	-	-	-	-	-	-	-	1	-	-	1	1	-
Animal sci/nutrition(21) ...	7	3	-	2	3	2	4	2	-	-	-	-	-	-	-
Poultry science(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-
Animal sciences, other(21) .	-	-	-	-	-	-	-	-	2	1	1	1	-	3	1
Fish/wildlife(22)	5	-	2	-	-	-	-	-	-	-	-	-	-	-	-
Fisheries science(22)	-	-	-	-	-	-	-	-	2	1	-	-	-	1	1
Wildlife management(22)	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Food sciences(23)	16	7	2	13	2	8	2	4	12	3	6	4	10	1	-
Food engineering(23)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Food sciences, other(23) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	6	8
Forestry science(24)	1	1	2	2	2	-	2	1	1	-	-	-	-	-	-
Forest management(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Forestry&relatd sci, oth(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Horticulture science	2	-	-	2	2	-	2	2	-	-	3	-	2	-	-
Plant breeding/genetics(25).	-	-	-	-	-	-	-	-	-	1	3	1	1	-	-
Plant pathology(25)	-	-	-	-	-	-	-	-	-	-	1	1	2	-	-
Phytopathology(25)	1	2	-	-	3	-	2	-	-	-	-	-	-	-	-
Soil sciences(26)	4	1	-	1	2	3	2	1	-	-	1	3	2	1	-
Soil chem/microbio(26)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Soil sciences, other(26) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-
Agriculture, general	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-
Agriculture, other	1	1	3	3	1	3	1	1	-	2	1	-	-	-	-
Biological sciences	98	82	90	85	83	86	66	63	63	55	45	43	64	70	78
Anatomy	4	2	2	1	4	-	-	1	-	-	3	-	2	-	2
Biochemistry	26	30	26	29	28	12	21	17	20	16	13	8	11	14	19
Biometrics/biostat	-	-	1	2	5	3	-	1	2	3	1	-	1	1	5
Biophysics	4	5	5	8	6	6	3	-	2	3	-	1	2	1	2
Botany, other(27)	-	-	-	-	-	-	-	-	-	-	-	3	2	-	1
Botany(27)	1	2	1	3	1	1	1	1	-	-	-	-	-	-	-
Cell biology(28)	-	-	-	-	-	-	-	-	-	1	2	1	2	-	3
Cytology(28)	1	1	-	-	2	2	-	-	-	-	-	-	-	-	-
Ecology	1	1	-	-	2	-	1	-	-	-	-	-	1	-	-
Embryology	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-
Endocrinology(2)	-	-	-	-	-	-	-	-	2	4	-	-	-	-	-
Entomology	-	-	3	6	4	4	2	1	3	1	-	1	-	2	1
Human/animal genetics(29) ..	-	-	-	-	-	-	-	-	3	-	1	1	2	4	2
Plant genetics(29)	-	-	-	-	-	-	-	-	-	-	2	1	-	-	-
Genetics(29)	3	2	4	2	2	3	2	5	-	-	-	-	-	-	-
Human/animal pathology(30) .	-	-	-	-	-	-	-	-	2	1	-	-	7	3	3
Plant pathology(30)	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-
Pathology(30)	2	1	4	1	-	2	2	1	-	-	-	-	-	-	-
Human/animal pharmacol	7	8	9	5	1	12	9	5	2	3	1	5	7	6	1
Human/animal physiol(31) ...	-	-	-	-	-	-	-	-	1	3	5	1	4	5	3
Animal physiology(31)	4	3	4	2	6	3	2	4	-	-	-	-	-	-	-
Plant physiology(31)	4	4	-	1	-	2	2	2	1	-	-	1	1	1	1
Immunology	2	1	4	4	2	6	4	2	1	2	1	4	1	5	5
Microbiology(32)	-	-	-	-	-	-	-	-	5	6	3	5	4	4	8
Bacteriology(32)	-	-	-	-	-	-	-	-	1	1	-	1	-	-	-
Microbiology/bacteriol(32) .	14	8	8	6	9	16	7	9	-	-	-	-	-	-	-
Molecular biology	7	5	7	5	1	5	3	1	2	3	4	1	4	6	11
Neurosciences	-	-	-	-	-	-	-	4	1	1	1	1	-	5	2
Nutritional sciences(33) ...	-	6	4	5	5	2	2	3	7	4	1	3	2	3	4
Parasitology	1	-	1	-	-	1	-	-	-	-	-	-	-	-	-
Toxicology(2)	-	-	-	-	-	-	-	-	2	1	-	-	3	2	-
Zoology, other(34)	-	-	-	-	-	-	-	-	1	-	2	2	-	1	-
Zoology(34)	1	-	1	-	1	-	-	1	-	-	-	-	-	-	-
Biological sci, general	4	1	3	4	2	3	4	3	3	2	3	1	4	4	2
Biological sci, other	12	2	3	1	2	2	1	1	2	-	1	2	4	2	3

See footnotes at end of table.

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Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

	Year of doctorate														
Field of study	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
NON-U.S. CITIZENS, PERMANENT RESIDENTS ASIAN															
SOCIAL SCIENCES	56	48	42	56	60	59	47	59	39	49	52	48	68	52	56
Agricultural economics	5	4	-	3	3	2	3	2	3	3	2	1	4	-	3
Anthropology	3	2	3	2	3	3	1	-	1	2	5	2	4	4	1
Area studies	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-
Criminology(35)	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-
Demography(2)	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-
Econometrics	2	3	1	1	-	2	3	1	-	-	1	2	-	1	-
Economics	10	16	16	22	24	24	19	20	25	22	18	14	28	26	20
Geography	2	-	-	3	2	-	1	3	-	2	2	3	1	-	2
History of science(36)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
International relations	3	1	3	1	3	4	1	1	1	5	1	3	1	1	1
Linguistics	6	4	1	1	5	1	1	6	-	4	4	3	4	3	6
Pol sci/government(37)	-	-	-	-	-	-	-	-	3	6	4	8	7	3	12
Political science(37)	-	5	11	7	5	6	6	5	-	-	-	-	-	-	-
Pol sci, public admin(37)	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Public policy studies(2)	-	-	-	-	-	-	-	-	1	1	-	1	-	1	1
Sociology	8	8	7	7	9	9	8	13	3	1	6	3	10	5	6
Statistics	-	-	-	5	2	4	1	4	1	1	3	4	5	3	1
Urban studies(38)	-	4	-	2	3	1	1	2	1	2	3	1	1	2	1
Social sciences, general	-	-	-	-	-	1	-	1	-	-	-	-	-	-	1
Social sciences, other	1	1	-	1	1	1	2	1	-	-	1	3	2	1	1
PSYCHOLOGY	8	5	7	11	7	10	8	6	9	11	10	9	9	10	17
Clinical	1	1	1	-	-	1	1	1	1	3	1	2	1	2	3
Cognitive(2)	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1
Counseling(40)	-	-	-	2	-	-	2	-	1	1	1	-	1	3	3
Developmental(41)	2	1	1	1	-	-	1	1	2	-	-	1	1	2	-
Educational	-	-	-	1	1	1	-	-	1	3	-	-	1	-	-
Experimental(39)	-	1	1	-	1	3	2	2	1	1	-	1	-	-	2
Indust/organizational(42)	1	-	-	-	-	-	1	-	-	-	1	-	-	-	-
Physiological(39)	1	-	-	1	-	-	-	-	1	-	-	-	1	-	-
Quantitative(2)	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1
Personality	-	-	-	1	-	-	-	1	-	-	-	-	-	-	1
Psychometrics	-	-	1	1	-	1	-	-	-	-	-	-	-	-	-
School	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Social	2	1	-	2	-	-	-	1	-	-	2	2	1	-	2
Psychology, general	1	1	3	-	2	3	1	-	-	1	1	1	2	1	4
Psychology, other	-	-	-	2	2	1	-	-	2	2	3	1	-	1	-
TOTAL, ENGINEERING	214	220	182	209	237	205	208	174	181	155	191	182	192	192	186
Aeronaut/astronautical(43)	7	5	5	11	10	7	4	6	8	5	9	2	4	6	4
Agricultural	2	2	1	2	2	-	3	1	4	3	1	1	-	1	4
Bioengineering/biomed(44)	1	4	2	5	4	3	6	-	1	2	1	1	1	4	1
Ceramic	1	5	2	2	-	3	3	3	3	-	1	-	4	1	2
Chemical	45	33	29	36	37	33	39	25	21	24	28	37	29	33	33
Civil	18	29	18	14	13	14	19	17	11	24	19	13	16	17	19
Communications(2)	-	-	-	-	-	-	-	-	4	-	5	2	3	1	1
Computer	2	8	13	4	9	5	13	6	7	5	10	5	4	11	5
Electrical/electronics(45)	-	-	-	-	-	-	-	-	44	36	33	45	30	46	38
Electrical(45)	30	39	42	28	52	32	33	32	1	-	-	-	-	-	-
Electronics(45)	9	3	8	3	10	6	5	4	3	-	-	-	-	-	-
Engineering mechanics	21	12	7	6	8	6	5	8	4	5	3	3	4	6	6
Engineering physics(46)	-	2	-	1	1	2	2	-	-	-	-	-	-	-	-
Engineering science(2)	-	-	-	-	-	-	-	-	1	1	4	3	1	1	-
Environmental health eng(47)	5	4	2	4	3	4	-	4	2	1	2	5	4	2	2
Fuel tech/petro eng(8)	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Industrial	2	1	5	2	8	6	3	6	8	3	6	6	4	7	4
Materials science	12	16	14	14	20	13	12	11	11	14	10	15	18	11	7
Mechanical	25	18	11	32	25	34	25	24	21	14	34	18	32	29	35
Metallurgical(48)	13	6	5	14	10	13	9	5	7	6	6	10	7	3	7
Mining/mineral(49)	-	-	-	2	-	-	1	1	2	2	-	-	3	2	1
Nuclear(46)	3	9	8	8	6	9	11	3	5	4	2	4	9	1	1
Ocean(2)	-	-	-	-	-	-	-	-	-	-	-	-	2	2	-
Operations research	6	6	3	6	3	4	8	5	3	1	3	3	5	-	2
Petroleum(50)	2	-	2	3	-	1	2	2	-	-	4	2	3	2	1
Polymer(2)	-	-	-	-	-	-	-	-	2	2	6	2	4	1	3
Systems(51)	3	5	3	4	7	1	2	2	4	2	1	1	-	4	2
Engineering, general	1	4	-	1	3	1	2	1	2	-	-	1	5	1	3
Engineering, other	5	9	2	7	6	8	1	8	2	1	3	3	-	-	5
TOTAL, NON-SCI/ENGINEERING(52)	120	88	76	86	103	103	117	114	118	117	118	118	147	160	142
TOTAL, ALL FIELDS	739	641	571	642	674	644	608	552	551	507	553	528	625	623	631

See footnotes at end of table.

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Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

Field of study	Year of doctorate														
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
NON-U.S. CITIZENS, PERMANENT RESIDENTS BLACK															
TOTAL, SCIENCE/ENGINEERING	33	35	40	36	23	44	50	51	39	58	79	64	74	86	64
TOTAL, SCIENCES	28	26	36	32	20	37	47	40	29	55	64	54	61	74	55
PHYSICAL SCIENCES	4	2	2	2	3	3	5	5	6	6	4	5	4	5	6
Physics/astronomy	1	-	-	-	2	1	-	-	1	1	-	1	2	1	-
Elementary particle	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Nuclear(5)	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Optics	1	-	-	-	1	-	-	-	-	-	-	-	-	1	-
Plasma	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-
Solid state	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Physics, general	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Physics, other	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Chemistry	3	2	2	2	1	2	5	5	5	5	4	4	2	4	6
Analytical	2	-	-	-	-	-	1	1	-	-	1	-	-	2	-
Inorganic	-	-	-	-	-	-	2	1	1	-	-	-	-	-	1
Nuclear	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Organic	-	1	-	-	-	1	-	1	1	3	2	1	1	-	2
Pharmaceutical	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
Physical	1	-	2	-	1	-	-	1	1	-	-	-	1	-	1
Polymer	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-
Chemistry, general	-	-	-	1	-	1	2	1	1	1	-	2	-	1	1
Chemistry, other	-	-	-	-	-	-	-	-	1	1	-	-	-	1	-
EARTH, ATMOS, & MARINE SCI	-	-	-	-	1	-	1	1	-	1	2	1	1	1	1
Environmental sciences(9) ..	-	-	-	-	-	-	1	-	-	-	-	-	1	-	1
Geochemistry(10)	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-
Geology(11)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Hydrology/water res(13)	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-
Minerology, petrology(10) ..	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Physical sciences, other(2).	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
MATHEMATICS	1	-	-	1	-	1	2	-	-	1	4	1	1	2	2
Algebra	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Analysis/funct analysis(17).	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1
Applied mathematics	1	-	-	1	-	-	-	-	-	1	-	-	-	-	-
Operations research	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Probability/math stat (18) .	-	-	-	-	-	-	1	-	-	-	3	-	1	-	-
Mathematics, general	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-
Mathematics, other	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1
COMPUTER/INFORMATION SCIENCES ..	-	-	-	-	-	-	-	-	-	1	1	1	-	1	-
Computer sciences	-	-	-	-	-	-	-	-	-	1	1	1	-	-	-
Information sci/systems(2) .	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-

See footnotes at end of table.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

Field of study	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
	Year of doctorate														
NON-U.S. CITIZENS, PERMANENT RESIDENTS															
BLACK															
AGRICULTURAL & BIOLOGICAL SCI ..	5	8	11	9	3	9	9	8	9	13	20	17	21	24	16
Agricultural sciences	2	-	5	3	2	1	2	2	-	8	11	9	6	12	8
Agronomy	-	-	-	-	-	1	-	-	-	2	1	1	1	4	-
Animal breeding/genetics(20)	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Animal nutrition(21)	-	-	-	-	-	-	-	-	-	1	-	1	-	-	2
Animal sci/nutrition(21) ...	1	-	1	2	-	-	-	1	-	-	-	-	-	-	-
Poultry science(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Animal sciences, other(21) .	-	-	-	-	-	-	-	-	-	1	2	1	2	-	-
Wildlife management(22)	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Wildlife/range mgmt(22)	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-
Food sciences(23)	-	-	1	-	2	-	-	1	-	-	3	-	1	-	-
Food sciences, other(23) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1
Forestry science(24)	-	-	1	-	-	-	1	-	-	-	-	-	1	-	-
Forest biology(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Renewable natrl resrces(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Horticulture science	-	-	-	-	-	-	1	-	-	1	-	1	1	-	1
Plant breeding/genetics(25).	-	-	-	-	-	-	-	-	-	-	-	1	-	1	1
Plant pathology(25)	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Soil sciences(26)	1	-	1	-	-	-	-	-	-	-	2	2	-	-	-
Soil sciences, other(26) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Agriculture, general	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Agriculture, other	-	-	1	1	-	-	-	-	-	1	1	2	-	-	1
Biological sciences	3	8	6	6	1	8	7	6	9	5	9	8	15	12	8
Anatomy	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Biochemistry	-	1	1	-	1	-	1	1	2	1	2	1	-	-	2
Biometrics/biostat	-	-	-	-	-	-	-	-	-	-	-	-	1	2	-
Cell biology(28)	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-
Cytology(28)	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-
Ecology	-	-	-	-	-	-	-	-	1	2	-	1	-	-	-
Entomology	-	1	-	1	-	1	-	-	-	-	-	1	-	1	-
Human/animal genetics(29) ..	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-
Genetics(29)	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Pathology(30)	1	1	-	-	-	1	-	-	-	-	-	-	-	-	-
Human/animal pharmacol	-	1	-	2	-	1	-	1	-	-	2	1	-	-	2
Human/animal physiol(31) ...	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1
Animal physiology(31)	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Plant physiology(31)	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Immunology	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Microbiology(32)	-	-	-	-	-	-	-	-	2	1	-	2	1	1	2
Microbiology/bacteriol(32) .	-	-	1	1	-	-	2	-	-	-	-	-	-	-	-
Molecular biology	-	-	-	-	-	-	-	-	-	-	-	-	2	1	-
Neurosciences	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-
Nutritional sciences(33) ...	-	1	2	-	-	1	1	3	1	-	1	1	3	6	1
Parasitology	-	1	-	-	-	-	-	-	-	-	1	-	1	-	-
Toxicology(2)	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-
Zoology, other(34)	-	-	-	-	-	-	-	-	1	-	-	-	1	1	-
Zoology(34)	-	-	2	1	-	1	-	-	-	-	-	-	-	-	-
Biological sci, general	-	-	-	-	-	1	1	-	1	-	1	-	-	-	-
Biological sci, other	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-

See footnotes at end of table.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

	Year of doctorate														
Field of study	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
NON-U.S. CITIZENS, PERMANENT RESIDENTS															
BLACK															
SOCIAL SCIENCES	16	16	20	16	10	20	28	23	12	27	29	22	29	37	29
Agricultural economics	-	1	1	-	1	-	4	-	-	2	2	-	2	2	4
Anthropology	1	1	-	1	2	-	-	-	-	-	1	1	2	1	-
Area studies	2	1	-	1	-	-	1	-	-	-	1	-	1	1	-
Criminology(35)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Demography(2)	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1
Econometrics	-	-	-	-	-	-	-	-	1	-	1	1	-	-	1
Economics	1	3	7	2	2	8	6	10	2	9	9	8	7	4	4
Geography	1	-	-	-	-	-	-	-	-	-	1	-	2	-	-
International relations	-	1	1	2	1	-	2	3	2	1	3	3	3	2	4
Linguistics	-	-	2	1	-	2	-	-	-	1	-	1	-	2	1
Pol sci/government(37)	-	-	-	-	-	-	-	-	2	9	5	2	7	9	7
Political science(37)	-	3	5	4	1	5	7	4	-	-	-	-	-	-	-
Pol sci, public admin(37)	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Public policy studies(2)	-	-	-	-	-	-	-	-	-	2	2	-	-	4	1
Sociology	2	4	3	3	2	5	4	1	4	2	2	5	2	8	1
Urban studies(38)	1	2	-	2	1	-	2	2	1	1	2	-	2	2	2
Social sciences, general	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Social sciences, other	-	-	1	-	-	-	2	3	-	-	-	-	1	2	1
PSYCHOLOGY	2	-	3	4	3	4	2	3	2	6	4	7	5	4	1
Clinical	1	-	1	3	1	-	1	-	1	2	-	3	2	1	-
Counseling(40)	-	-	-	-	1	-	-	-	1	2	2	3	-	1	1
Developmental(41)	-	-	-	-	-	1	-	1	-	1	-	-	-	-	-
Educational	-	-	-	-	1	-	-	-	-	1	-	1	-	1	-
Experimental(39)	-	-	1	1	-	-	-	1	-	-	1	-	-	-	-
Indust/organizational(42)	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Personality	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Social	1	-	-	-	-	1	-	-	-	-	-	-	1	1	-
Psychology, general	-	-	-	-	-	1	1	1	-	-	-	-	1	-	-
Psychology, other	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-
TOTAL, ENGINEERING	5	9	4	4	3	7	3	11	10	3	15	10	13	12	9
Aeronaut/astronautical(43)	-	-	-	-	-	-	-	2	-	-	2	-	-	1	-
Agricultural	-	-	-	-	1	-	-	-	1	-	1	-	1	-	2
Bioengineering/biomed(44)	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-
Chemical	-	-	1	-	-	1	-	1	2	-	2	2	-	2	2
Civil	-	2	-	2	-	1	1	-	2	-	2	1	3	1	3
Computer	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
Electrical/electronics(45)	-	-	-	-	-	-	-	-	-	2	2	2	3	-	1
Electrical(45)	1	4	1	1	-	1	-	3	-	-	-	-	-	-	-
Electronics(45)	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Engineering mechanics	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-
Engineering science(2)	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
Environmental health eng(47)	-	1	-	-	-	-	-	2	-	-	-	1	-	-	-
Industrial	-	-	-	1	-	-	-	1	1	-	1	-	-	4	-
Materials science	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
Mechanical	2	-	-	-	-	-	-	-	1	-	1	-	-	1	-
Metallurgical(48)	1	-	-	-	-	-	-	-	1	-	1	1	1	1	-
Mining/mineral(49)	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-
Nuclear(46)	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-
Operations research	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Petroleum(50)	-	-	1	-	-	1	1	1	-	-	-	1	-	1	-
Polymer(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Systems(51)	-	1	1	-	-	-	1	-	-	1	1	-	-	-	-
Engineering, general	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Engineering, other	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-
TOTAL, NON-SCI/ENGINEERING(52)	25	19	38	37	35	30	47	45	44	44	52	62	65	60	71
TOTAL, ALL FIELDS	58	54	78	73	58	74	97	96	83	102	131	126	139	146	135

See footnotes at end of table.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

	Year of doctorate														
Field of study	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
NON-U.S. CITIZENS, PERMANENT RESIDENTS HISPANIC															
TOTAL, SCIENCE/ENGINEERING	15	10	27	40	49	42	40	43	45	41	46	66	49	67	69
TOTAL, SCIENCES	13	9	23	27	40	33	36	30	34	29	40	56	39	47	55
PHYSICAL SCIENCES	3	3	5	3	8	7	4	4	2	9	4	5	8	6	7
Physics/astronomy	-	-	4	2	3	3	2	3	-	2	1	4	4	1	4
Astronomy(1)	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
Astrophysics(1)	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Atomic/molecular	-	-	-	-	-	-	1	1	-	-	-	-	2	-	-
Elementary particle	-	-	-	1	1	1	-	-	-	1	1	1	-	-	1
Fluids	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Nuclear(5)	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Optics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Plasma	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Solid state	-	-	1	1	-	1	1	1	-	-	-	2	1	1	1
Physics, general	-	-	2	-	-	-	-	-	-	-	-	-	1	-	-
Physics, other	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-
Chemistry	3	3	1	1	5	4	2	1	2	7	3	1	4	5	3
Analytical	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-
Inorganic	-	-	-	-	1	-	1	-	-	-	1	1	-	1	-
Nuclear	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Organic	-	2	1	-	1	3	-	-	2	2	1	-	1	2	1
Pharmaceutical	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Physical	3	1	-	-	2	-	-	-	-	4	-	-	2	-	1
Chemistry, general	-	-	-	1	-	-	-	-	-	-	1	-	-	2	1
Chemistry, other	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-
EARTH, ATMOS, & MARINE SCI	1	-	1	1	1	1	-	1	2	1	2	-	2	-	3
Applied geology(8)	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Atmos/meteorol sci, other ..	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Atmospheric phys/chem	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Environmental sciences(9) ..	-	-	-	1	-	-	-	-	1	-	1	-	-	-	-
Geochemistry(10)	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Geology(11)	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Geophysics/seismology(12) ..	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1
Oceanography	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2
Stratigraphy, sediment	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Geological sciences, gen(16)	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Earth sciences, other(16) ..	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
MATHEMATICS	-	-	3	-	4	2	1	-	3	-	5	3	2	1	3
Algebra	-	-	-	-	1	1	-	-	-	-	-	1	-	-	2
Analysis/funct analysis(17).	-	-	2	-	1	-	-	-	-	-	-	-	-	-	-
Applied mathematics	-	-	-	-	2	1	-	-	-	-	3	1	1	-	-
Geometry	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Operations research	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1
Probability/math stat (18) .	-	-	1	-	-	-	1	-	-	-	2	-	1	1	-
Mathematics, general	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Mathematics, other	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
COMPUTER/INFORMATION SCIENCES ..	-	-	-	-	1	-	-	-	-	-	1	3	-	-	-
Computer sciences	-	-	-	-	1	-	-	-	-	-	1	3	-	-	-

See footnotes at end of table.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

Field of study	Year of doctorate														
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
NON-U.S. CITIZENS, PERMANENT RESIDENTS															
HISPANIC															
AGRICULTURAL & BIOLOGICAL SCI	4	3	4	5	6	6	14	4	8	9	12	24	13	23	19
Agricultural sciences	-	1	1	2	2	1	7	1	4	4	2	10	3	8	6
Agronomy	-	-	-	-	1	-	2	-	3	-	-	1	-	-	1
Animal breeding/genetics(20)	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-
Animal nutrition(21)	-	-	-	-	-	-	-	-	-	1	-	-	1	-	2
Animal sci/nutrition(21)	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-
Animal sciences, other(21)	-	-	-	-	-	-	-	-	-	-	-	1	-	1	1
Fisheries science(22)	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Food sciences(23)	-	-	-	-	-	-	2	-	1	-	1	1	-	-	-
Food engineering(23)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Forestry&relatd sci, oth(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Horticulture science	-	-	-	1	-	-	-	-	-	-	-	1	-	1	-
Plant breeding/genetics(25)	-	-	-	-	-	-	-	-	-	1	-	-	1	1	-
Plant pathology(25)	-	-	-	-	-	-	-	-	-	1	-	1	-	-	1
Phytopathology(25)	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-
Plant sciences, other(25)	-	-	-	-	-	-	-	-	-	1	1	-	-	1	-
Soil sciences(26)	-	1	-	-	-	-	2	-	-	-	-	2	1	-	-
Soil chem/microbio(26)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Agriculture, other	-	-	-	1	-	1	-	-	-	-	-	1	-	1	-
Biological sciences	4	2	3	3	4	5	7	3	4	5	10	14	10	15	13
Anatomy	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-
Biochemistry	2	1	2	1	-	-	-	-	2	1	3	2	-	3	2
Biophysics	-	-	-	-	-	-	1	-	-	-	-	1	1	-	-
Botany, other(27)	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Botany(27)	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-
Cell biology(28)	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-
Ecology	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-
Embryology	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Entomology	1	-	-	-	-	-	2	-	-	1	-	1	-	-	-
Human/animal genetics(29)	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
Plant pathology(30)	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Human/animal pharmacol	-	-	-	-	-	1	-	-	-	-	3	-	-	-	1
Human/animal physiol(31)	-	-	-	-	-	-	-	-	-	-	1	-	-	-	2
Animal physiology(31)	-	-	1	-	-	-	1	1	-	-	-	-	-	-	-
Plant physiology(31)	-	-	-	-	-	-	-	-	-	-	-	-	1	2	-
Immunology	-	-	-	1	1	-	-	-	-	-	1	1	1	-	-
Microbiology(32)	-	-	-	-	-	-	-	-	-	-	-	2	2	3	2
Microbiology/bacteriol(32)	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-
Molecular biology	-	-	-	1	-	1	1	1	1	-	-	1	-	1	1
Neurosciences	-	-	-	-	-	-	-	-	1	-	1	-	-	-	1
Nutritional sciences(33)	-	-	-	-	-	-	-	-	-	-	-	-	2	1	1
Parasitology	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1
Toxicology(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Zoology, other(34)	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Zoology(34)	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Biological sci, general	-	-	-	-	-	-	-	-	-	1	-	2	-	1	1
Biological sci, other	-	-	-	-	1	-	-	-	-	-	-	1	2	-	-

See footnotes at end of table.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

Field of study	Year of doctorate														
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
NON-U.S. CITIZENS, PERMANENT RESIDENTS															
HISPANIC															
SOCIAL SCIENCES	3	3	4	11	13	14	10	16	9	7	11	13	11	13	17
Agricultural economics	2	-	-	-	-	1	-	3	3	1	-	1	-	-	1
Anthropology	-	1	-	3	2	1	5	-	1	1	1	4	1	3	2
Area studies	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-
Demography(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Econometrics	-	-	-	-	-	-	-	1	-	1	-	-	-	-	1
Economics	1	1	1	3	2	4	3	5	1	2	3	1	4	4	2
International relations	-	-	-	1	-	-	-	-	1	-	1	-	-	-	1
Linguistics	-	-	3	2	3	4	-	1	-	-	2	-	1	2	2
Pol sci/government(37)	-	-	-	-	-	-	-	-	-	-	-	2	4	-	1
Political science(37)	-	1	-	1	1	-	1	3	-	-	-	-	-	-	-
Public policy studies(2)	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Sociology	-	-	-	1	3	3	-	2	1	1	2	2	1	3	6
Urban studies(38)	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-
Social sciences, general	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Social sciences, other	-	-	-	-	1	-	1	1	2	1	-	1	-	-	1
PSYCHOLOGY	2	-	6	7	7	3	7	5	10	3	5	8	3	4	6
Clinical	2	-	2	1	2	2	3	4	3	2	2	3	2	1	2
Cognitive(2)	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Counseling(40)	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-
Developmental(41)	-	-	-	-	3	-	-	-	-	-	-	1	-	-	1
Educational	-	-	-	-	-	-	2	-	1	-	-	-	-	-	-
Experimental(39)	-	-	1	1	-	-	-	-	-	-	1	-	-	1	-
Indust/organizational(42)	-	-	1	-	1	-	-	-	1	-	-	-	-	-	-
Physiological(39)	-	-	1	-	-	-	-	-	-	-	-	-	-	1	-
Quantitative(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Personality	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
School	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Social	-	-	-	1	1	-	-	-	2	-	1	1	-	-	-
Psychology, general	-	-	1	1	-	1	1	-	2	-	1	1	-	-	1
Psychology, other	-	-	-	3	-	-	-	1	-	1	-	-	1	-	1
TOTAL, ENGINEERING	2	1	4	13	9	9	4	13	11	12	6	10	10	20	14
Aeronaut/astronautical(43)	-	-	-	-	1	1	-	1	-	1	-	-	-	-	-
Agricultural	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Bioengineering/biomed(44)	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-
Ceramic	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-
Chemical	-	-	1	2	-	-	-	1	2	1	-	-	4	2	4
Civil	-	-	-	2	1	2	-	2	3	-	1	4	-	3	4
Communications(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Computer	-	-	-	2	-	-	-	-	-	-	-	-	1	-	-
Electrical/electronics(45)	-	-	-	-	-	-	-	-	1	2	3	2	1	4	3
Electrical(45)	-	-	-	5	-	1	-	1	-	-	-	-	-	-	-
Electronics(45)	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Engineering mechanics	-	-	-	-	-	-	-	1	-	-	-	1	-	2	-
Engineering science(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Industrial	-	-	1	-	-	1	1	1	1	1	-	-	-	-	-
Materials science	1	-	-	-	-	-	-	-	1	1	-	1	-	1	-
Mechanical	-	-	-	1	2	-	2	3	2	1	-	2	1	-	-
Metallurgical(48)	-	-	-	-	-	-	1	1	-	2	-	-	2	-	-
Nuclear(46)	-	-	-	-	-	-	-	1	-	-	1	-	-	1	-
Ocean(2)	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Operations research	1	-	-	-	2	1	-	-	1	-	-	-	-	1	-
Petroleum(50)	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Systems(51)	-	1	1	-	-	-	-	1	-	2	-	-	-	-	1
Engineering, general	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-
Engineering, other	-	-	1	-	-	1	-	-	-	-	1	-	-	-	-
TOTAL, NON-SCI/ENGINEERING(52)	19	13	24	25	28	31	22	36	24	30	27	41	42	32	42
TOTAL, ALL FIELDS	34	23	51	65	77	73	62	79	69	71	73	107	91	99	111

See footnotes at end of table.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

Field of study	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
	Year of doctorate														
NON-U.S. CITIZENS, PERMANENT RESIDENTS WHITE															
TOTAL, SCIENCE/ENGINEERING	386	354	370	341	288	302	298	296	362	325	344	398	438	449	443
TOTAL, SCIENCES	289	251	246	246	217	227	214	211	250	230	253	273	311	325	303
PHYSICAL SCIENCES	61	52	50	51	33	29	33	32	38	34	50	41	54	46	52
Physics/astronomy	35	26	30	24	18	13	13	9	24	12	26	15	30	24	31
Astronomy(1)	2	1	-	1	1	1	1	-	-	-	-	-	-	3	-
Astrophysics(1)	1	-	-	1	-	1	2	-	1	1	1	1	1	-	1
Atomic/molecular	6	-	1	6	1	1	-	1	1	-	1	-	2	1	-
Electron(2)	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1
Electromagnetism(3)	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Elementary particle	4	5	5	-	2	1	3	1	2	4	4	3	8	4	6
Fluids	-	1	-	-	2	-	-	-	-	-	-	-	1	1	-
Nuclear(5)	-	4	5	2	1	1	-	-	5	1	1	2	4	1	4
Optics	-	-	-	-	-	1	1	-	3	2	-	-	1	4	1
Plasma	2	3	2	3	1	1	-	-	1	-	1	1	5	1	6
Solid state	12	6	8	3	5	2	2	5	8	1	8	4	6	4	6
Thermal(7)	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Physics, general	4	5	5	4	4	2	4	1	1	2	7	4	2	4	6
Physics, other	3	1	4	3	1	2	-	1	2	1	2	-	-	1	-
Chemistry	26	26	20	27	15	16	20	23	14	22	24	26	24	22	21
Agricultural/food	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Analytical	-	-	3	-	3	2	2	3	-	2	1	4	5	1	-
Inorganic	-	4	1	2	2	1	-	4	-	3	2	2	3	5	5
Nuclear	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Organic	11	7	5	4	7	4	9	5	8	6	8	4	8	3	5
Pharmaceutical	1	3	2	4	-	-	1	1	1	1	-	2	-	2	2
Physical	5	4	5	4	2	2	4	3	2	6	3	4	4	7	3
Polymer	1	-	1	2	-	2	1	1	1	3	1	1	-	-	1
Theoretical	2	1	1	-	1	-	1	-	1	-	-	-	-	-	-
Chemistry, general	4	5	1	6	-	3	2	4	-	-	6	5	4	4	4
Chemistry, other	1	2	1	5	-	2	-	1	1	1	3	4	-	-	1
EARTH, ATMOS, & MARINE SCI	16	8	7	6	13	9	5	12	10	12	15	15	13	20	14
Applied geology(8)	-	-	-	1	-	-	1	1	-	-	-	1	-	-	-
Atmos/meteorol sci, gen(2)	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-
Atmos/meteorol sci, other	-	-	1	1	1	-	-	-	-	-	-	-	-	-	-
Atmospheric dynamics	-	-	-	-	1	1	-	1	-	1	-	-	1	2	-
Atmospheric phys/chem	-	-	-	-	-	-	-	-	1	1	-	1	-	1	-
Environmental sciences(9)	2	-	1	1	4	2	-	-	1	1	1	1	-	-	1
Geochemistry(10)	1	1	2	1	-	-	1	1	-	-	-	3	-	-	1
Geology(11)	-	-	-	-	-	-	-	-	-	1	5	5	1	3	3
Structural geology(11)	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-
Geomorph/glacial geology	4	-	-	-	-	-	-	1	1	-	-	-	1	-	1
Geophysics/seismology(12)	-	1	1	-	1	3	1	2	3	3	2	-	4	3	-
Geophysics(12)	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrology/water res(13)	1	-	-	-	1	-	-	2	-	-	-	1	-	-	-
Marine sciences(2)	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-
Marine sciences, other(14)	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Meteorology(15)	1	-	-	-	-	-	-	-	-	-	2	-	-	-	-
Minerology, petrology(10)	1	1	-	-	-	-	-	1	-	-	1	1	-	1	-
Oceanography	2	2	1	-	-	1	-	-	2	1	-	1	2	3	4
Paleontology	-	1	-	-	-	-	-	-	1	-	1	-	-	-	-
Stratigraphy, sediment	-	1	-	2	3	-	-	-	-	2	3	1	1	1	2
Geological sciences, gen(16)	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1
Geological sciences, oth(16)	-	-	-	-	-	-	-	-	-	1	-	-	1	3	1
Earth sciences, general(16)	1	1	1	-	-	-	1	1	-	-	-	-	-	-	-
Earth sciences, other(16)	1	-	-	-	1	2	1	-	-	-	-	-	-	-	-
Physical sciences, other(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-
MATHEMATICS	20	16	21	16	19	27	19	18	21	14	13	17	24	24	18
Algebra	2	1	2	2	2	2	3	1	2	2	1	-	1	2	-
Analysis/funct analysis(17)	2	1	1	3	4	2	2	-	2	-	2	4	3	2	4
Applied mathematics	2	2	5	2	4	4	3	8	4	2	5	1	1	8	5
Computing theory	6	2	4	3	1	1	1	2	-	-	-	1	1	-	-
Geometry	1	-	-	-	-	2	1	1	1	-	-	2	-	1	-
Logic	-	1	-	-	-	2	-	1	-	2	2	2	1	1	-
Number theory	-	1	-	-	-	1	-	1	-	1	-	1	1	-	-
Operations research	2	-	4	3	1	1	2	-	-	-	-	1	4	-	-
Probability/math stat (18)	4	4	2	2	4	8	5	1	6	3	-	3	5	3	5
Topology	1	2	1	1	1	1	1	1	1	-	1	-	-	3	2
Mathematics, general	-	1	1	-	2	2	1	1	2	1	2	2	5	3	2
Mathematics, other	-	1	1	-	-	1	-	1	3	3	-	-	2	1	-
COMPUTER/INFORMATION SCIENCES	-	-	1	3	5	5	8	2	13	8	7	17	14	12	22
Computer sciences	-	-	1	3	5	5	8	2	11	7	5	16	13	10	21
Information sci/systems(2)	-	-	-	-	-	-	-	-	2	1	2	1	1	2	1

See footnotes at end of table.

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Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

Field of study	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
	Year of doctorate														
NON-U.S. CITIZENS, PERMANENT RESIDENTS															
WHITE															
AGRICULTURAL & BIOLOGICAL SCI	77	64	57	56	50	61	51	46	48	56	57	62	75	113	81
Agricultural sciences	20	14	7	12	6	14	8	5	13	9	13	14	13	25	10
Agronomy	1	1	-	3	-	2	1	-	-	2	1	3	1	5	-
Animal breeding/genetics(20)	-	-	-	-	-	-	-	-	1	-	-	-	1	-	1
Animal nutrition(21)	-	-	-	-	-	-	-	-	2	-	-	1	-	1	-
Animal sci/nutrition(21)	2	3	3	-	1	1	1	1	-	-	-	-	-	-	-
Animal sciences, other(21)	-	-	-	-	-	-	-	-	1	-	3	2	1	2	3
Fish/wildlife(22)	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Fisheries science(22)	-	-	-	-	-	-	-	-	2	-	-	-	1	1	-
Wildlife management(22)	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-
Food sciences(23)	8	5	3	4	4	4	1	2	2	1	3	3	2	-	-
Food engineering(23)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Food sciences, other(23)	-	-	-	-	-	-	-	-	-	-	-	-	-	3	2
Forestry science(24)	2	-	1	-	-	-	-	-	2	1	1	2	1	-	-
Renewable natrl resrces(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Horticulture science	1	-	-	1	-	1	2	-	2	-	1	-	2	4	1
Plant breeding/genetics(25)	-	-	-	-	-	-	-	-	-	-	1	-	1	1	-
Plant pathology(25)	-	-	-	-	-	-	-	-	1	-	1	1	-	2	1
Phytopathology(25)	2	2	-	1	1	2	-	1	-	-	-	-	-	-	-
Plant sciences, other(25)	-	-	-	-	-	-	-	-	-	1	-	-	1	1	-
Soil sciences(26)	3	3	-	1	-	1	1	1	-	3	2	1	-	-	-
Soil sciences, other(26)	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-
Agriculture, general	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Agriculture, other	1	-	-	2	-	2	2	-	-	1	-	1	-	-	-
Biological sciences	57	50	50	44	44	47	43	41	35	47	44	48	62	88	71
Anatomy	1	3	2	1	1	2	3	1	1	-	3	-	2	4	2
Biochemistry	16	9	6	4	10	7	9	15	5	8	10	7	6	12	9
Biometrics/biostat	-	2	1	1	-	-	-	-	1	-	1	-	-	2	-
Biophysics	-	5	2	2	1	2	2	2	-	1	-	1	2	-	1
Botany, other(27)	-	-	-	-	-	-	-	-	1	3	-	1	1	3	2
Botany(27)	1	2	-	-	-	2	1	-	-	-	-	-	-	-	-
Cell biology(28)	-	-	-	-	-	-	-	-	-	2	2	1	4	2	3
Cytology(28)	1	-	-	-	-	2	-	-	-	-	-	-	-	-	-
Ecology	1	1	2	1	-	3	1	1	3	1	2	1	2	5	4
Embryology	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-
Endocrinology(2)	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Entomology	1	1	-	2	1	2	3	1	1	1	-	2	-	1	3
Human/animal genetics(29)	-	-	-	-	-	-	-	-	-	3	1	1	2	1	1
Genetics(29)	1	1	4	1	1	2	1	1	-	-	-	-	-	-	-
Human/animal pathology(30)	-	-	-	-	-	-	-	-	2	1	2	1	5	3	3
Plant pathology(30)	-	-	-	-	-	-	-	-	-	-	-	-	3	1	1
Pathology(30)	4	3	3	2	2	5	-	2	-	-	-	-	-	-	-
Human/animal pharmacol	3	1	4	2	-	3	1	1	1	3	2	3	5	3	2
Human/animal physiol(31)	-	-	-	-	-	-	-	-	4	4	3	7	7	2	7
Animal physiology(31)	8	4	6	6	3	3	6	2	-	-	-	-	-	-	-
Plant physiology(31)	2	1	2	2	1	1	1	2	2	1	-	-	2	2	1
Immunology	1	3	1	1	6	3	-	2	3	2	5	-	1	4	2
Microbiology(32)	-	-	-	-	-	-	-	-	3	3	7	5	2	10	6
Bacteriology(32)	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Microbiology/bacteriol(32)	6	5	7	5	4	3	3	3	-	-	-	-	-	-	-
Molecular biology	2	3	-	3	2	1	3	1	2	3	-	7	3	11	5
Neurosciences	-	-	-	-	-	-	-	3	1	1	2	1	5	1	6
Nutritional sciences(33)	-	2	-	1	4	1	2	-	-	1	-	1	2	3	1
Parasitology	-	-	1	-	-	-	-	-	-	-	-	-	-	2	-
Toxicology(2)	-	-	-	-	-	-	-	-	1	1	-	1	1	3	-
Zoology, other(34)	-	-	-	-	-	-	-	-	2	2	-	2	-	1	1
Zoology(34)	-	1	2	2	4	2	1	2	-	-	-	-	-	-	-
Biological sci, general	4	2	6	3	3	2	3	2	-	4	2	3	3	4	6
Biological sci, other	5	1	1	5	1	1	3	-	2	1	1	2	4	7	5

See footnotes at end of table.

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Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

Field of study	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
	Year of doctorate														
NON-U.S. CITIZENS, PERMANENT RESIDENTS															
WHITE															
SOCIAL SCIENCES	80	81	82	82	69	67	68	70	77	75	73	83	91	70	88
Agricultural economics	3	-	5	-	3	3	5	4	3	2	-	4	2	5	1
Anthropology	3	7	9	8	9	8	3	6	7	5	7	9	8	6	9
Area studies	2	1	-	1	-	-	-	1	-	-	-	-	-	-	-
Criminology(35)	-	-	-	-	-	-	2	-	2	-	1	-	-	-	-
Demography(2)	-	-	-	-	-	-	-	-	-	-	-	2	-	1	-
Econometrics	3	-	-	-	2	1	2	-	2	3	1	2	1	1	1
Economics	25	19	16	22	20	14	24	25	26	30	24	27	34	17	24
Geography	7	7	10	6	2	2	1	1	7	4	5	1	4	4	5
History of science(36)	1	2	-	2	-	-	-	-	-	1	1	-	-	-	-
International relations	4	4	-	6	2	5	1	2	2	2	2	2	3	2	4
Linguistics	5	3	6	3	4	5	1	5	6	5	9	5	5	7	13
Pol sci/government(37)	-	-	-	-	-	-	-	-	7	9	6	8	12	10	11
Political science(37)	-	9	14	16	6	8	10	9	-	-	-	-	-	-	-
Pol sci, public admin(37) ..	7	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Public policy studies(2) ...	-	-	-	-	-	-	-	-	1	2	1	-	1	1	-
Sociology	10	19	16	13	15	17	14	12	8	10	6	14	14	8	12
Statistics	2	-	-	-	1	-	1	2	-	-	2	4	2	1	1
Urban studies(38)	4	5	4	2	2	2	3	2	1	2	4	2	1	2	-
Social sciences, general ...	1	1	-	-	1	-	-	-	1	-	-	1	-	1	3
Social sciences, other	3	3	2	3	2	2	1	1	4	-	4	2	4	4	4
PSYCHOLOGY	35	30	28	32	28	29	30	31	43	31	38	38	40	40	28
Clinical	10	5	5	9	5	7	3	9	12	12	11	11	12	19	12
Cognitive(2)	-	-	-	-	-	-	-	-	1	1	-	-	2	1	-
Comparative(39)	-	1	1	-	-	-	-	-	-	1	-	1	-	-	1
Counseling(40)	2	3	1	1	4	2	6	2	4	4	2	7	5	2	2
Developmental(41)	2	1	5	1	1	2	2	3	1	1	1	2	6	1	2
Educational	-	2	2	4	2	4	2	1	8	1	3	2	-	2	1
Experimental(39)	6	1	3	5	4	6	2	-	2	-	-	2	2	2	2
Indust/organizational(42) ..	2	1	2	3	2	-	1	1	1	2	1	-	-	-	1
Physiological(39)	-	2	-	2	1	3	2	1	-	-	5	1	1	1	-
Quantitative(2)	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
Personality	1	-	-	-	-	-	-	-	1	-	1	-	-	1	-
Psychometrics	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1
School	-	4	-	2	-	2	-	2	3	-	1	2	-	1	-
Social	5	3	4	1	2	1	4	2	1	2	5	4	4	2	-
Psychology, general	5	5	2	2	4	1	4	5	6	4	5	3	4	6	3
Psychology, other	2	1	3	2	3	1	4	5	3	3	3	2	3	2	3
TOTAL, ENGINEERING	97	103	124	95	71	75	84	85	112	95	91	125	127	124	140
Aeronaut/astronautical(43) .	6	3	5	3	4	3	2	1	5	4	5	2	4	7	4
Agricultural	-	1	-	1	1	1	1	2	2	2	-	1	5	1	2
Bioengineering/biomed(44) ..	3	2	2	1	-	2	3	3	-	4	3	1	1	3	3
Ceramic	1	-	5	1	1	-	2	-	-	1	-	1	1	1	1
Chemical	7	6	14	8	8	6	4	10	12	7	9	10	13	6	15
Civil	11	12	21	9	7	7	12	8	14	14	15	26	17	21	25
Communications(2)	-	-	-	-	-	-	-	-	1	2	2	-	3	2	3
Computer	6	2	5	7	3	2	4	4	9	3	1	6	2	-	4
Electrical/electronics(45) .	-	-	-	-	-	-	-	-	14	17	25	20	22	37	37
Electrical(45)	15	23	18	17	14	9	18	15	4	-	-	-	-	-	-
Electronics(45)	1	3	3	4	-	2	2	2	1	-	-	-	-	-	-
Engineering mechanics	2	5	7	4	3	4	2	8	5	6	1	5	8	4	6
Engineering physics(46)	1	-	-	-	2	-	1	-	-	1	-	2	-	-	1
Engineering science(2)	-	-	-	-	-	-	-	-	-	1	-	-	1	-	1
Environmental health eng(47)	2	4	2	2	1	1	1	2	1	2	-	2	1	-	2
Fuel tech/petro eng(8)	1	1	-	-	1	-	-	-	-	-	-	-	-	-	-
Industrial	6	2	2	2	1	3	3	3	8	2	-	8	8	-	3
Materials science	4	5	6	2	2	5	6	1	3	2	2	1	3	6	2
Mechanical	11	12	14	11	12	15	10	17	13	13	15	24	19	24	16
Metallurgical(48)	4	4	7	3	-	1	3	1	2	1	-	2	1	1	1
Mining/mineral(49)	1	1	-	1	-	-	1	-	1	1	1	1	-	-	1
Naval arch/marine engin(2) .	-	-	-	-	-	-	-	-	-	1	-	3	-	1	1
Nuclear(46)	4	5	2	8	3	5	3	3	6	6	2	3	2	1	3
Ocean(2)	-	-	-	-	-	-	-	-	2	-	2	-	-	-	1
Operations research	3	6	5	3	1	2	1	1	-	3	1	2	4	1	1
Petroleum(50)	2	2	-	2	2	4	-	2	1	-	1	-	-	1	-
Polymer(2)	-	-	-	-	-	-	-	-	-	-	2	1	1	1	2
Systems(51)	1	2	1	3	3	2	4	1	3	-	2	1	4	2	2
Engineering, general	-	2	1	1	1	1	1	-	2	-	-	1	4	3	2
Engineering, other	5	-	4	2	1	-	-	1	3	2	2	2	3	1	1
TOTAL, NON-SCI/ENGINEERING(52) ...	223	216	219	190	188	166	192	167	183	189	190	198	216	224	223
TOTAL, ALL FIELDS	609	570	589	531	476	468	490	463	545	514	534	596	654	673	666

See footnotes at end of table.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

Field of study	Year of doctorate 1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
NON-U.S. CITIZENS, PERMANENT RESIDENTS OTHER/UNKNOWN RACE															
TOTAL, SCIENCE/ENGINEERING	216	154	57	19	14	24	14	26	18	21	25	49	47	64	41
TOTAL, SCIENCES	114	96	45	15	11	21	12	13	14	12	13	33	34	45	29
PHYSICAL SCIENCES	33	32	13	1	5	2	2	3	4	3	3	11	5	9	2
Physics/astronomy	17	17	9	-	4	2	2	1	-	1	2	2	3	3	1
Acoustics	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Astronomy(1)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Astrophysics(1)	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Atomic/molecular	2	1	-	-	-	-	-	-	-	-	-	-	1	-	1
Electromagnetism(3)	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Elementary particle	1	-	-	-	-	-	-	-	-	1	-	1	1	-	-
Fluids	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Nuclear(5)	3	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Optics	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Solid state	5	7	4	-	2	-	2	-	-	-	-	1	1	-	-
Physics, general	4	5	4	-	2	2	-	-	-	-	1	-	-	2	-
Physics, other	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Chemistry	16	15	4	1	1	-	-	2	4	2	1	9	2	6	1
Analytical	1	-	1	-	-	-	-	-	-	-	-	-	-	2	-
Inorganic	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
Organic	5	4	1	-	-	-	-	1	-	-	-	3	2	1	-
Pharmaceutical	4	2	-	1	1	-	-	-	-	-	1	1	-	-	-
Physical	2	1	1	-	-	-	-	-	2	-	-	1	-	-	-
Polymer	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-
Theoretical	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Chemistry, general	4	4	1	-	-	-	-	1	1	-	-	4	-	2	1
Chemistry, other	-	2	-	-	-	-	-	-	1	-	-	-	-	-	-
EARTH, ATMOS, & MARINE SCI	4	4	1	1	1	1	-	-	-	-	-	-	-	3	-
Environmental sciences(9) ..	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Geochemistry(10)	1	-	1	-	-	-	-	-	-	-	-	-	-	1	-
Geology(11)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Geophysics/seismology(12) ..	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Geophysics(12)	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Meteorology(15)	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oceanography	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Earth sciences, general(16).	-	1	-	1	1	1	-	-	-	-	-	-	-	-	-
Physical sciences, other(2).	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
MATHEMATICS	3	5	2	2	-	2	1	2	1	-	1	1	1	1	1
Algebra	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Analysis/funct analysis(17).	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-
Applied mathematics	-	-	-	-	-	-	1	-	-	-	1	1	-	-	-
Computing theory	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Geometry	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Operations research	-	2	-	-	-	1	-	1	-	-	-	-	-	-	-
Probability/math stat (18) .	-	1	1	-	-	-	-	-	-	-	-	-	1	-	-
Mathematics, general	1	1	1	1	-	-	-	1	1	-	-	-	-	1	-
Mathematics, other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
COMPUTER/INFORMATION SCIENCES ..	-	-	-	-	-	1	-	-	-	-	-	1	2	5	1
Computer sciences	-	-	-	-	-	1	-	-	-	-	-	1	1	4	1
Information sci/systems(2) .	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-

See footnotes at end of table.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

	Year of doctorate														
Field of study	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
NON-U.S. CITIZENS, PERMANENT RESIDENTS OTHER/UNKNOWN RACE															
AGRICULTURAL & BIOLOGICAL SCI ..	34	25	14	5	2	5	2	4	4	3	1	9	14	12	12
Agricultural sciences	6	5	2	1	2	-	1	-	1	1	1	5	5	5	5
Agronomy	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Animal breeding/genetics(20)	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-
Animal sci/nutrition(21) ...	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-
Fish/wildlife(22)	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fisheries science(22)	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Food sciences(23)	2	1	1	-	-	-	1	-	1	-	-	-	1	-	-
Food sciences, other(23) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Forestry science(24)	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Forest management(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Horticulture science	-	1	-	-	-	-	-	-	-	-	-	-	1	-	2
Plant breeding/genetics(25).	-	-	-	-	-	-	-	-	-	-	-	1	1	-	1
Plant pathology(25)	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Phytopathology(25)	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Plant protectn-pest mgmt(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Soil sciences(26)	-	-	-	1	1	-	-	-	-	1	-	2	-	-	-
Soil sciences, other(26) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	3	1
Agriculture, other	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Biological sciences	28	20	12	4	-	5	1	4	3	2	-	4	9	7	7
Anatomy	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1
Biochemistry	6	1	2	2	-	-	-	1	1	-	-	1	2	2	2
Biometrics/biostat	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1
Biophysics	-	2	1	-	-	2	-	-	-	-	-	-	-	-	-
Cell biology(28)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Cytology(28)	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Ecology	1	2	-	-	-	-	-	1	-	-	-	-	-	1	-
Entomology	1	1	-	-	-	-	-	1	-	-	-	-	-	-	-
Plant genetics(29)	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Genetics(29)	1	-	-	1	-	1	-	-	-	-	-	-	-	-	-
Human/animal pathology(30) .	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Pathology(30)	-	2	1	-	-	-	-	-	-	-	-	-	-	-	-
Human/animal pharmacol	2	-	-	-	-	-	1	-	-	1	-	-	-	-	-
Animal physiology(31)	5	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Plant physiology(31)	-	-	-	-	-	-	-	-	-	-	-	-	1	2	-
Immunology	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Microbiology(32)	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-
Microbiology/bacteriol(32) .	8	6	1	1	-	-	-	-	-	-	-	-	-	-	-
Molecular biology	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1
Neurosciences	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-
Nutritional sciences(33) ...	-	1	2	-	-	-	-	-	-	-	-	1	1	-	1
Toxicology(2)	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Zoology, other(34)	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Zoology(34)	1	-	3	-	-	-	-	-	-	-	-	-	-	-	-
Biological sci, general	-	1	-	-	-	-	-	1	-	-	-	-	1	1	-
Biological sci, other	2	2	-	-	-	1	-	-	-	-	-	-	1	-	-

See footnotes at end of table.

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Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

Field of study	Year of doctorate														
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
NON-U.S. CITIZENS, PERMANENT RESIDENTS OTHER/UNKNOWN RACE															
SOCIAL SCIENCES	32	24	12	6	3	6	7	2	5	6	6	8	10	13	13
Agricultural economics	2	2	-	-	-	1	-	-	-	1	-	-	2	-	1
Anthropology	1	1	1	-	-	2	1	-	-	-	-	1	2	-	2
Area studies	1	1	-	-	-	-	-	-	-	-	-	-	-	-	1
Econometrics	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-
Economics	9	6	3	3	2	1	3	1	2	-	3	4	1	4	2
Geography	-	1	2	-	-	-	-	1	-	-	-	-	-	-	-
History of science(36)	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
International relations	1	-	-	-	-	1	-	-	1	-	1	-	1	-	-
Linguistics	3	1	-	2	-	1	1	-	-	1	-	1	-	1	1
Pol sci/government(37)	-	-	-	-	-	-	-	-	-	2	1	2	-	2	2
Political science(37)	-	4	2	-	1	-	1	-	-	-	-	-	-	-	-
Pol sci, public admin(37)	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Public policy studies(2)	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Sociology	7	4	3	1	-	-	1	-	1	-	1	-	1	4	-
Statistics	1	-	-	-	-	-	-	-	-	1	-	-	-	-	1
Urban studies(38)	-	2	-	-	-	-	-	-	-	-	-	-	1	1	-
Social sciences, general	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-
Social sciences, other	1	-	-	-	-	-	-	-	-	-	-	-	1	1	3
PSYCHOLOGY	8	6	3	-	-	4	-	2	-	-	2	3	2	2	-
Clinical	2	-	1	-	-	-	-	-	-	-	-	1	1	-	-
Counseling(40)	-	-	-	-	-	-	-	-	-	-	-	1	-	2	-
Developmental(41)	-	-	-	-	-	1	-	-	-	-	1	1	-	-	-
Educational	-	2	-	-	-	-	-	1	-	-	-	-	-	-	-
Experimental(39)	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-
Indust/organizational(42)	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Physiological(39)	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Psychometrics	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
School	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Social	1	1	-	-	-	-	-	1	-	-	-	-	-	-	-
Psychology, general	1	-	1	-	-	-	-	-	-	-	-	-	1	-	-
Psychology, other	2	-	-	-	-	3	-	-	-	-	-	-	-	-	-
TOTAL, ENGINEERING	102	58	12	4	3	3	2	13	4	9	12	16	13	19	12
Aeronaut/astronautical(43)	3	-	-	-	-	-	-	-	-	1	1	1	-	-	-
Agricultural	2	-	-	-	-	-	-	-	-	-	-	2	1	-	-
Bioengineering/biomed(44)	1	-	-	-	-	-	-	-	1	-	-	-	1	-	-
Ceramic	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Chemical	13	10	-	-	1	-	-	-	1	-	-	2	2	2	1
Civil	13	7	5	-	-	-	2	-	-	2	1	1	-	2	3
Computer	1	3	-	-	-	-	-	1	-	-	-	-	-	1	-
Electrical/electronics(45)	-	-	-	-	-	-	-	-	1	2	2	1	4	3	4
Electrical(45)	14	8	3	1	-	-	-	5	-	-	-	-	-	-	-
Electronics(45)	1	1	-	-	1	1	-	-	-	-	-	-	-	-	-
Engineering mechanics	10	1	1	-	-	-	-	-	-	-	-	-	-	1	-
Environmental health eng(47)	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Industrial	2	1	1	-	-	-	-	-	-	-	2	-	1	-	1
Materials science	3	2	-	1	-	1	-	1	-	-	1	1	-	1	1
Mechanical	14	14	1	-	-	-	-	4	1	-	3	5	2	4	2
Metallurgical(48)	7	5	-	1	-	-	-	-	-	-	-	-	-	1	-
Mining/mineral(49)	1	-	-	-	-	-	-	-	-	1	-	1	-	-	-
Naval arch/marine engin(2)	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Nuclear(46)	3	1	-	1	-	-	-	-	-	1	-	1	-	-	-
Operations research	4	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Petroleum(50)	1	-	1	-	-	-	-	2	-	-	-	-	-	-	-
Polymer(2)	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Systems(51)	3	1	-	-	1	1	-	-	-	-	1	-	-	2	-
Engineering, general	1	1	-	-	-	-	-	-	-	1	1	-	1	-	-
Engineering, other	3	-	-	-	-	-	-	-	-	-	-	-	1	2	-
TOTAL, NON-SCI/ENGINEERING(52)	58	52	21	14	21	8	10	12	8	9	8	26	22	13	21
TOTAL, ALL FIELDS	274	206	78	33	35	32	24	38	26	30	33	75	69	77	62
NON-U.S. CITIZENS, TEMPORARY RESIDENTS NATIVE AMERICAN															
TOTAL, SCIENCE/ENGINEERING	-	-	2	1	1	-	-	-	-	-	-	1	1	-	-
TOTAL, SCIENCES	-	-	2	1	-	-	-	-	-	-	-	1	-	-	-
EARTH, ATMOS, & MARINE SCI	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Geophysics/seismology(12)	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
AGRICULTURAL & BIOLOGICAL SCI	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-
Biological sciences	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-
Immunology	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Nutritional sciences(33)	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
PSYCHOLOGY	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Physiological(39)	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL, ENGINEERING	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-
Civil	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Electrical/electronics(45)	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
TOTAL, NON-SCI/ENGINEERING(52)	-	-	2	-	2	-	-	-	-	-	-	-	-	-	-
TOTAL, ALL FIELDS	-	-	4	1	3	-	-	-	-	-	-	1	1	-	-

See footnotes at end of table.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

Field of study	Year of doctorate														
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
NON-U.S. CITIZENS, TEMPORARY RESIDENTS															
ASIAN															
TOTAL, SCIENCE/ENGINEERING	934	957	938	1092	1207	1216	1308	1505	1627	1896	2096	2191	2451	2888	3224
TOTAL, SCIENCES	645	632	655	734	799	768	815	940	999	1147	1245	1353	1493	1763	1970
PHYSICAL SCIENCES	213	189	193	221	239	255	276	310	306	356	369	476	505	591	641
Physics/astronomy	96	89	81	96	110	92	123	127	126	148	167	214	238	263	279
Acoustics	-	-	3	1	-	2	-	2	2	3	2	2	1	3	2
Astronomy(1)	2	1	-	-	2	1	1	2	1	2	5	-	6	4	4
Astrophysics(1)	6	1	3	3	4	2	1	1	-	4	4	4	7	2	10
Atomic/molecular	11	9	10	4	3	7	7	12	14	9	8	12	19	13	21
Electron(2)	-	-	-	-	-	-	-	-	-	2	-	1	-	-	-
Electromagnetism(3)	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-
Elementary particle	5	11	8	7	12	7	9	18	11	23	18	21	23	29	28
Fluids	4	-	1	3	-	2	2	2	2	2	3	1	6	3	2
Mechanics(4)	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Nuclear(5)	10	9	7	11	13	8	11	8	9	6	11	19	14	17	13
Optics	2	2	-	3	6	8	6	3	13	8	12	7	9	13	16
Plasma	5	5	2	4	9	3	6	9	7	7	12	5	11	14	13
Polymer(2)	-	-	-	-	-	-	-	-	3	2	1	3	3	8	2
Solid state	26	20	28	28	32	26	40	29	33	40	53	79	82	70	89
Thermal(7)	1	1	1	3	1	-	2	-	-	-	-	-	-	-	-
Physics, general	17	19	11	23	18	22	30	31	23	31	20	47	40	70	55
Physics, other	7	9	7	6	9	4	8	10	8	9	18	13	17	17	24
Chemistry	117	100	112	125	129	163	153	183	180	208	202	262	267	328	362
Agricultural/food	1	2	1	1	1	-	-	-	-	-	-	-	-	-	-
Analytical	9	6	5	5	10	12	12	12	19	25	20	29	36	39	51
Inorganic	11	9	11	9	10	10	12	16	12	19	17	28	23	25	36
Nuclear	-	2	3	-	2	1	-	2	2	2	-	2	1	1	-
Organic	43	33	25	44	47	65	44	61	62	57	63	58	74	97	94
Pharmaceutical	1	3	2	1	3	11	2	9	12	6	8	5	8	11	8
Physical	32	22	31	31	20	27	15	24	29	28	31	33	45	53	63
Polymer	4	5	10	4	10	13	19	15	11	12	20	16	25	29	25
Theoretical	1	2	3	2	4	4	4	4	8	5	3	8	5	6	14
Chemistry, general	12	10	18	24	16	16	39	29	14	40	30	67	42	55	59
Chemistry, other	3	6	3	4	6	4	6	11	11	14	10	16	8	12	12
EARTH, ATMOS, & MARINE SCI	16	29	31	20	26	26	21	34	44	45	57	50	57	70	57
Applied geology(8)	1	2	1	1	1	2	-	3	-	-	-	-	1	-	1
Atmos/meteorol sci, gen(2)	-	-	-	-	-	-	-	-	1	-	3	1	4	3	3
Atmos/meteorol sci, other	-	2	3	1	6	9	5	1	1	1	3	-	3	-	2
Atmospheric dynamics	-	1	4	1	2	3	2	5	3	4	3	2	4	3	4
Atmospheric phys/chem	-	1	-	1	1	1	1	-	1	2	1	1	2	3	1
Environmental sciences(9)	1	1	-	1	-	-	3	3	5	2	3	4	2	6	4
Geochemistry(10)	1	2	2	1	1	2	1	1	2	1	1	2	2	2	1
Geology(11)	-	-	-	-	-	-	-	-	2	7	7	2	8	10	3
Structural geology(11)	-	-	-	1	2	-	-	-	-	-	-	-	-	-	-
Geomorph/glacial geology	-	-	-	-	-	1	-	-	1	1	-	1	-	-	-
Geophysics/seismology(12)	-	3	6	7	4	4	4	7	6	10	15	11	6	15	12
Geophysics(12)	6	5	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrology/water res(13)	-	-	3	1	1	1	1	3	1	-	2	-	-	3	5
Marine sciences(2)	-	-	-	-	-	-	-	-	1	2	1	1	5	4	2
Marine sciences, other(14)	-	-	-	-	1	-	2	2	-	-	-	-	-	-	-
Meteorology(15)	2	3	-	-	-	-	-	-	3	3	3	6	5	5	4
Minerology, petrology(10)	2	1	2	-	-	-	-	1	3	1	1	1	2	1	2
Oceanography	2	5	3	2	5	3	-	3	11	7	8	5	8	10	5
Paleontology	-	1	-	1	-	-	-	-	-	-	-	3	-	1	1
Stratigraphy, sediment	1	1	2	-	1	-	1	2	-	-	2	1	-	1	-
Geological sciences, gen(16)	-	-	-	-	-	-	-	-	1	-	-	1	2	-	5
Geological sciences, oth(16)	-	-	-	-	-	-	-	-	-	3	-	-	2	-	1
Earth sciences, general(16)	-	1	1	1	1	-	1	1	-	-	-	-	-	-	-
Earth sciences, other(16)	-	-	4	1	-	-	-	2	-	-	-	-	-	-	-
Physical sciences, other(2)	-	-	-	-	-	-	-	-	2	1	4	8	1	3	1
MATHEMATICS	72	59	57	59	58	65	81	76	88	107	107	125	131	150	184
Algebra	7	5	3	7	5	7	6	6	5	10	8	6	12	12	14
Analysis/funct analysis(17)	14	11	15	7	8	8	9	13	15	12	10	7	10	9	19
Applied mathematics	6	6	6	7	10	8	12	12	7	10	25	24	24	31	42
Computing theory	7	5	5	1	1	1	-	2	2	2	1	4	2	2	3
Geometry	2	3	3	2	2	2	1	3	7	7	7	9	8	11	11
Logic	1	1	1	1	-	1	-	1	2	2	-	3	1	3	2
Number theory	1	1	1	1	1	3	2	-	2	3	5	3	2	8	3
Operations research	6	-	3	2	-	6	9	5	2	7	2	8	3	5	4
Probability/math stat (18)	12	19	14	17	23	21	27	23	24	32	36	30	33	36	44
Topology	5	3	3	2	1	1	5	2	2	7	1	5	1	6	8
Mathematics, general	9	5	3	6	7	6	6	6	12	12	9	19	30	24	22
Mathematics, other	2	-	-	6	-	1	4	3	8	3	3	7	5	3	12
COMPUTER/INFORMATION SCIENCES	-	-	-	12	12	14	12	30	31	51	49	68	86	114	120
Computer sciences	-	-	-	12	12	14	12	30	31	48	39	63	74	98	108
Information sci/systems(2)	-	-	-	-	-	-	-	-	-	3	10	5	12	16	12

See footnotes at end of table.

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Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

	Year of doctorate														
Field of study	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
NON-U.S. CITIZENS, TEMPORARY RESIDENTS ASIAN															
AGRICULTURAL & BIOLOGICAL SCI ..	199	206	204	258	238	209	221	238	256	287	343	318	378	454	494
Agricultural sciences	84	78	85	109	100	87	104	97	113	106	124	122	118	131	148
Agronomy	16	23	15	23	18	18	15	17	20	21	27	21	24	17	16
Animal breeding/genetics(20)	1	1	3	2	2	3	4	-	1	3	3	3	2	4	3
Animal nutrition(21)	-	-	-	-	-	-	-	-	2	5	6	3	6	3	6
Animal sci/nutrition(21) ...	8	6	9	11	12	6	7	6	-	-	-	-	-	-	-
Dairy science(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Poultry science(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Animal sciences, other(21) .	-	-	-	-	-	-	-	-	9	7	10	7	4	5	7
Fish/wildlife(22)	3	1	2	8	3	8	1	4	-	-	-	-	-	-	-
Fisheries science(22)	-	-	-	-	-	-	-	-	2	6	2	3	1	7	8
Wildlife management(22)	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-
Wildlife/range mgmt(22)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Food sciences(23)	14	12	21	17	18	13	21	24	22	27	25	37	33	4	-
Food engineering(23)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
Food sciences, other(23) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	35	32
Forestry science(24)	12	11	7	9	16	7	8	7	11	2	8	10	10	-	-
Forest biology(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	4	3
Forest engineering(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Forest management(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3
Wood science(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	3	5
Renewable natrl resrces(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2
Forestry&relatd sci, oth(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	2	6
Horticulture science	10	10	6	6	6	9	10	10	9	2	9	5	10	5	8
Plant breeding/genetics(25).	-	-	-	-	-	-	-	-	9	2	6	10	3	12	6
Plant pathology(25)	-	-	-	-	-	-	-	-	7	11	7	10	8	8	8
Phytopathology(25)	9	7	6	10	8	7	15	6	-	-	-	-	-	-	-
Plant sciences, other(25) ..	-	-	-	-	-	-	-	-	4	2	1	4	3	3	3
Soil sciences(26)	6	4	10	12	11	5	14	14	13	5	13	7	7	-	-
Soil chem/microbio(26)	-	-	-	-	-	-	-	-	-	-	-	-	-	4	4
Soil sciences, other(26) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	6	11
Agriculture, general	3	1	4	1	-	-	1	-	1	-	-	-	-	3	1
Agriculture, other	2	2	2	10	6	11	8	9	2	13	6	2	7	2	6
Biological sciences	115	128	119	149	138	122	117	141	143	181	219	196	260	323	346
Anatomy	3	-	1	4	4	6	1	4	5	4	5	4	3	1	2
Biochemistry	30	33	28	43	35	34	26	31	27	45	46	49	60	89	86
Biometrics/biostat	1	1	2	3	-	2	1	2	3	5	4	5	2	7	3
Biophysics	4	5	9	4	9	3	4	8	6	8	4	7	12	13	14
Botany, other(27)	-	-	-	-	-	-	-	-	4	5	7	8	6	6	7
Botany(27)	7	6	4	8	4	3	1	6	-	-	-	-	-	-	-
Cell biology(28)	-	-	-	-	-	-	-	-	3	5	3	4	5	10	7
Cytology(28)	5	-	1	1	-	1	1	-	-	-	-	-	-	-	-
Ecology	2	-	3	2	2	2	1	2	2	2	2	7	1	5	9
Embryology	2	2	-	-	-	-	-	-	1	-	-	-	-	-	1
Endocrinology(2)	-	-	-	-	-	-	-	-	2	1	2	2	3	3	2
Entomology	11	16	13	9	10	11	10	15	10	16	13	5	9	4	9
Human/animal genetics(29) ..	-	-	-	-	-	-	-	-	1	2	6	3	4	9	7
Plant genetics(29)	-	-	-	-	-	-	-	-	2	1	2	3	3	4	3
Genetics(29)	7	11	3	8	5	10	1	9	-	-	-	-	-	-	-
Human/animal pathology(30) .	-	-	-	-	-	-	-	-	6	2	4	5	6	9	7
Plant pathology(30)	-	-	-	-	-	-	-	-	1	4	8	3	4	1	1
Pathology(30)	-	1	1	2	4	2	4	4	-	-	-	-	-	-	-
Human/animal pharmacol	2	2	5	6	10	7	9	6	2	14	13	6	10	9	15
Human/animal physiol(31) ...	-	-	-	-	-	-	-	-	8	6	12	6	10	15	18
Animal physiology(31)	5	8	12	9	6	6	6	13	-	-	-	-	-	-	-
Plant physiology(31)	7	3	5	2	5	-	7	1	4	5	9	1	6	13	4
Immunology	2	5	4	2	3	2	4	6	11	4	3	8	14	6	6
Microbiology(32)	-	-	-	-	-	-	-	-	17	19	23	15	24	20	31
Bacteriology(32)	-	-	-	-	-	-	-	-	-	-	2	2	-	-	2
Microbiology/bacteriol(32) .	8	14	5	14	9	8	13	11	-	-	-	-	-	-	-
Molecular biology	6	5	6	9	10	8	6	8	7	7	19	19	33	44	49
Neurosciences	-	-	-	-	-	-	-	-	5	4	2	3	6	5	10
Nutritional sciences(33) ...	-	5	7	5	6	-	5	6	6	6	13	9	13	10	18
Parasitology	-	-	-	2	-	-	1	-	1	1	1	-	-	3	-
Toxicology(2)	-	-	-	-	-	-	-	-	3	1	4	1	2	3	3
Zoology, other(34)	-	-	-	-	-	-	-	-	1	1	5	3	4	9	2
Zoology(34)	1	4	4	3	2	3	3	3	-	-	-	-	-	-	-
Biological sci, general	6	4	3	8	9	8	9	2	4	8	5	13	13	15	22
Biological sci, other	6	3	3	5	5	6	4	4	1	5	2	5	7	10	8

See footnotes at end of table.

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Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

Field of study	Year of doctorate														
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
NON-U.S. CITIZENS, TEMPORARY RESIDENTS ASIAN															
SOCIAL SCIENCES	128	136	160	151	212	190	189	243	246	277	301	296	321	357	439
Agricultural economics	19	19	19	19	28	19	24	28	27	29	18	28	19	20	26
Anthropology	3	5	6	5	12	5	6	8	8	10	9	12	8	11	16
Area studies	-	-	-	-	-	-	3	-	-	2	3	2	-	-	1
Criminology(35)	-	-	-	-	-	1	-	-	2	5	2	-	1	5	1
Demography(2)	-	-	-	-	-	-	-	-	3	3	3	2	3	2	1
Econometrics	3	5	7	3	3	3	2	5	7	2	3	9	9	5	10
Economics	43	40	63	53	75	71	67	81	93	107	135	115	128	145	174
Geography	1	3	2	6	5	5	3	10	8	11	7	13	13	15	13
History of science(36)	-	-	-	1	-	-	-	-	-	1	2	-	1	-	1
International relations	4	10	1	7	4	10	4	7	4	5	5	7	1	10	9
Linguistics	10	8	12	13	15	13	17	19	15	17	24	21	37	25	26
Pol sci/government(37)	-	-	-	-	-	-	-	-	16	29	33	30	32	43	54
Political science(37)	-	14	19	12	25	14	14	29	-	-	-	-	-	-	-
Pol sci, public admin(37) ..	20	2	-	-	-	-	-	-	-	-	-	-	-	-	-
Public policy studies(2) ...	-	-	-	-	-	-	-	-	6	2	2	5	9	6	7
Sociology	13	16	12	13	20	27	24	23	27	23	26	23	22	37	44
Statistics	8	5	7	9	8	7	9	6	10	14	20	13	16	15	30
Urban studies(38)	3	3	1	2	8	7	10	16	8	8	5	5	12	7	12
Social sciences, general ...	1	2	3	1	2	1	1	3	2	2	1	3	1	3	1
Social sciences, other	-	4	8	7	7	7	5	8	10	7	3	8	9	8	13
PSYCHOLOGY	17	13	10	13	14	9	15	9	28	24	19	20	15	27	35
Clinical	2	-	1	2	2	1	2	-	1	-	3	1	1	3	2
Cognitive(2)	-	-	-	-	-	-	-	-	-	4	2	-	1	6	4
Comparative(39)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Counseling(40)	3	-	1	1	1	1	2	2	4	-	3	4	1	2	5
Developmental(41)	1	-	1	-	3	-	1	2	1	3	-	1	1	3	3
Educational	1	2	-	1	2	-	1	-	2	2	1	1	-	-	4
Experimental(39)	-	1	3	2	2	-	3	2	6	1	3	2	4	3	1
Indust/organizational(42) ..	-	1	-	1	-	1	-	-	2	1	-	-	-	3	2
Physiological(39)	2	-	2	2	1	-	-	1	4	-	-	-	2	1	1
Quantitative(2)	-	-	-	-	-	-	-	-	-	-	-	1	1	-	1
Personality	-	2	-	-	-	-	-	-	-	-	-	-	-	-	1
Psychometrics	-	-	-	1	1	1	1	-	-	-	1	-	-	-	-
School	-	1	-	-	-	-	-	-	-	-	1	1	-	-	-
Social	2	4	1	2	-	1	1	2	4	4	2	5	2	1	7
Psychology, general	4	2	1	-	2	-	3	-	1	2	1	3	2	4	1
Psychology, other	2	-	-	1	-	4	1	-	3	7	2	1	-	1	2
TOTAL, ENGINEERING	289	325	283	358	408	448	493	565	628	749	851	838	958	1125	1254
Aeronaut/astronautical(43) .	6	6	16	16	21	20	19	23	25	42	29	42	37	32	54
Agricultural	3	4	4	9	21	17	16	11	7	19	15	13	16	12	24
Bioengineering/biomed(44) ..	4	2	1	5	3	2	4	4	4	5	4	4	7	13	17
Ceramic	2	5	1	1	4	7	6	3	7	7	5	5	9	9	11
Chemical	47	48	38	38	44	76	62	71	88	97	114	117	132	150	116
Civil	35	44	36	49	46	34	53	67	86	77	96	99	107	139	129
Communications(2)	-	-	-	-	-	-	-	-	2	2	6	5	9	3	5
Computer	7	15	7	5	19	18	14	22	24	13	19	24	21	42	52
Electrical/electronics(45) .	-	-	-	-	-	-	-	-	94	142	160	151	157	234	268
Electrical(45)	59	62	47	60	59	64	77	112	15	1	-	-	-	-	-
Electronics(45)	7	11	9	7	11	11	7	8	1	-	-	-	-	-	-
Engineering mechanics	17	17	11	20	16	20	20	21	18	26	34	28	40	37	36
Engineering physics(46)	4	-	-	1	3	1	2	1	-	-	1	1	-	1	4
Engineering science(2)	-	-	-	-	-	-	-	-	10	6	8	3	4	7	9
Environmental health eng(47)	8	5	6	6	5	4	10	4	6	15	13	7	11	8	8
Fuel tech/petro eng(8)	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Industrial	4	10	8	6	13	10	9	19	17	25	29	34	37	38	66
Materials science	11	14	16	24	27	39	25	38	41	58	60	54	75	73	93
Mechanical	30	19	30	46	45	48	66	68	88	102	123	111	162	207	205
Metallurgical(48)	17	16	17	18	21	20	33	25	27	20	34	43	39	34	26
Mining/mineral(49)	-	1	-	-	1	1	-	-	2	4	4	6	6	6	11
Naval arch/marine engin(2) .	-	-	-	-	-	-	-	-	2	1	4	-	-	3	4
Nuclear(46)	3	16	10	13	11	15	19	28	21	22	22	33	20	23	19
Ocean(2)	-	-	-	-	-	-	-	-	3	6	13	3	12	4	5
Operations research	5	9	4	8	9	7	17	13	6	9	12	9	7	6	21
Petroleum(50)	2	1	1	2	5	9	2	6	3	2	1	2	7	6	2
Polymer(2)	-	-	-	-	-	-	-	-	4	14	12	14	16	11	27
Systems(51)	7	7	10	9	4	11	14	7	10	15	16	9	11	9	3
Engineering, general	2	5	1	5	4	5	4	2	1	8	6	7	4	7	11
Engineering, other	8	8	10	10	16	9	14	12	16	11	11	14	12	11	28
TOTAL, NON-SCI/ENGINEERING(52) ...	189	174	180	219	256	256	256	324	379	399	430	454	482	629	653
TOTAL, ALL FIELDS	1123	1131	1118	1311	1463	1472	1564	1829	2006	2295	2526	2645	2933	3517	3877

See footnotes at end of table.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

Field of study	Year of doctorate														
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
NON-U.S. CITIZENS, TEMPORARY RESIDENTS															
BLACK															
TOTAL, SCIENCE/ENGINEERING	104	96	145	138	170	186	213	207	211	235	221	195	180	190	169
TOTAL, SCIENCES	92	81	126	117	136	147	174	174	173	184	183	170	149	154	146
PHYSICAL SCIENCES	7	10	7	13	14	14	12	18	16	22	19	19	17	17	13
Physics/astronomy	3	3	3	4	2	4	-	7	5	3	-	2	3	5	1
Atomic/molecular	-	-	-	1	-	-	-	1	-	1	-	1	-	-	-
Elementary particle	1	1	-	-	-	1	-	-	-	-	-	-	-	-	-
Nuclear(5)	1	-	-	-	-	1	-	-	-	1	-	-	-	2	-
Optics	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-
Plasma	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-
Solid state	1	1	1	3	2	1	-	1	2	-	-	1	1	1	-
Physics, general	-	1	1	-	-	-	-	2	3	1	-	-	-	1	-
Physics, other	-	-	1	-	-	-	-	1	-	-	-	-	1	1	1
Chemistry	4	7	4	9	12	10	12	11	11	19	19	17	14	12	12
Agricultural/food	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Analytical	-	-	1	1	1	2	-	1	-	5	6	1	3	3	2
Inorganic	-	-	1	2	2	2	-	3	2	1	-	4	3	1	3
Nuclear	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Organic	2	3	-	1	4	2	7	5	4	4	2	4	4	1	3
Pharmaceutical	-	1	1	-	1	-	1	-	2	1	1	2	-	3	-
Physical	-	1	-	2	1	3	2	2	-	2	4	2	3	3	1
Polymer	-	-	-	2	1	1	-	-	1	-	2	1	-	-	-
Theoretical	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Chemistry, general	2	-	1	-	2	-	1	-	1	2	3	3	-	1	2
Chemistry, other	-	1	-	-	-	-	1	-	1	3	1	-	1	-	1
EARTH, ATMOS, & MARINE SCI	1	5	3	3	3	4	8	7	11	6	2	3	1	4	3
Applied geology(8)	-	-	-	-	-	-	1	2	1	-	-	-	-	1	-
Atmos/meteorol sci, other ..	-	-	-	-	1	2	-	-	-	-	-	-	-	-	-
Environmental sciences(9) ..	-	-	1	-	-	-	2	-	3	-	-	-	-	-	1
Geochemistry(10)	-	-	-	1	-	-	-	4	-	-	-	-	1	-	1
Geology(11)	-	-	-	-	-	-	-	-	1	2	1	-	-	-	-
Geomorph/glacial geology ...	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Geophysics/seismology(12) ..	-	-	-	1	-	2	3	-	1	2	-	1	-	-	-
Geophysics(12)	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrology/water res(13)	-	-	-	-	-	-	1	-	2	1	1	-	-	-	-
Marine sciences(2)	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Meteorology(15)	1	-	-	-	-	-	-	-	-	-	-	1	-	1	-
Minerology, petrology(10) ..	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Oceanography	-	-	-	1	2	-	-	-	1	-	-	-	-	-	-
Stratigraphy, sediment	-	1	1	-	-	-	-	-	-	1	-	-	-	-	-
Geological sciences, gen(16)	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Geological sciences, oth(16)	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1
Earth sciences, general(16).	-	1	1	-	-	-	1	-	-	-	-	-	-	-	-
Earth sciences, other(16) ..	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-
MATHEMATICS	4	2	5	2	1	2	9	6	2	4	4	6	7	4	5
Algebra	1	2	-	-	-	1	2	-	-	-	-	-	1	-	1
Analysis/funct analysis(17).	1	-	1	-	-	-	1	1	-	1	-	1	1	-	-
Applied mathematics	-	-	-	-	-	-	1	1	-	-	2	1	3	1	-
Computing theory	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Operations research	1	-	-	-	-	-	1	1	1	-	-	-	-	1	-
Probability/math stat (18) .	-	-	3	2	-	-	3	2	1	3	1	1	-	-	2
Topology	-	-	1	-	1	-	-	-	-	-	1	-	-	-	-
Mathematics, general	-	-	-	-	-	-	1	-	-	-	-	1	2	2	2
Mathematics, other	-	-	-	-	-	1	-	1	-	-	-	2	-	-	-
COMPUTER/INFORMATION SCIENCES ..	-	-	-	1	1	-	1	-	1	3	-	3	1	2	3
Computer sciences	-	-	-	1	1	-	1	-	1	2	-	3	1	2	3
Information sci/systems(2) .	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-

See footnotes at end of table.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

	Year of doctorate														
Field of study	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
NON-U.S. CITIZENS, TEMPORARY RESIDENTS															
BLACK															
AGRICULTURAL & BIOLOGICAL SCI ..	35	28	43	39	53	68	79	65	61	72	73	65	45	63	56
Agricultural sciences	21	17	28	24	31	39	48	34	42	50	47	33	26	31	32
Agronomy	3	6	11	3	8	12	10	7	10	14	7	9	1	5	6
Animal breeding/genetics(20)	1	-	1	1	-	1	-	-	1	1	1	1	2	2	1
Animal nutrition(21)	-	-	-	-	-	-	-	-	1	5	3	2	2	2	-
Animal sci/nutrition(21) ...	3	4	1	4	4	4	12	5	-	-	-	-	-	-	-
Dairy science(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Poultry science(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Animal sciences, other(21) .	-	-	-	-	-	-	-	-	7	8	3	4	3	2	1
Fish/wildlife(22)	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Fisheries science(22)	-	-	-	-	-	-	-	-	5	-	-	1	-	-	1
Wildlife management(22)	-	-	-	-	-	-	-	-	-	1	1	-	-	1	-
Wildlife/range mgmt(22)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Food sciences(23)	3	-	1	3	2	2	5	4	7	2	3	-	2	1	-
Food sciences, other(23) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	5	4
Forestry science(24)	1	1	1	-	1	1	2	-	3	3	3	1	1	-	-
Wood science(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Renewable natrl resrces(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Forestry&relatd sci, oth(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Horticulture science	1	2	3	4	5	4	4	1	2	2	4	2	-	1	1
Plant breeding/genetics(25).	-	-	-	-	-	-	-	-	1	6	7	2	1	4	3
Plant pathology(25)	-	-	-	-	-	-	-	-	-	3	5	5	3	-	5
Phytopathology(25)	3	2	4	4	1	7	3	3	-	-	-	-	-	-	-
Plant sciences, other(25) ..	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1
Soil sciences(26)	2	2	3	3	6	5	5	5	3	3	5	5	4	-	-
Soil chem/microbio(26)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Soil sciences, other(26) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
Agriculture, general	1	-	-	1	3	-	1	-	-	-	1	-	-	1	-
Agriculture, other	3	-	3	1	1	3	6	8	2	2	4	1	6	1	-
Biological sciences	14	11	15	15	22	29	31	31	19	22	26	32	19	32	24
Anatomy	-	-	1	1	-	2	1	2	-	-	1	1	-	1	1
Biochemistry	-	1	2	-	5	3	3	4	4	2	3	2	2	2	2
Biometrics/biostat	-	1	-	1	-	-	1	1	-	1	-	3	-	-	-
Botany, other(27)	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1
Botany(27)	-	1	1	2	1	4	-	-	-	-	-	-	-	-	-
Cell biology(28)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Cytology(28)	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Ecology	-	-	-	-	-	1	-	2	1	-	1	-	-	2	2
Embryology	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Endocrinology(2)	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-
Entomology	2	1	1	1	4	2	3	3	3	5	4	3	5	2	2
Human/animal genetics(29) ..	-	-	-	-	-	-	-	-	-	-	1	2	1	-	-
Plant genetics(29)	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Genetics(29)	1	2	1	1	-	1	-	-	-	-	-	-	-	-	-
Human/animal pathology(30) .	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Plant pathology(30)	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Pathology(30)	2	-	1	-	-	1	1	3	-	-	-	-	-	-	-
Human/animal pharmacol	3	2	2	2	1	3	4	-	-	2	1	2	-	4	2
Human/animal physiol(31) ...	-	-	-	-	-	-	-	-	-	1	2	2	2	5	1
Animal physiology(31)	1	-	2	1	1	1	2	2	-	-	-	-	-	-	-
Plant physiology(31)	-	-	1	1	2	-	2	1	-	-	-	2	-	-	-
Immunology	-	1	-	-	-	-	1	-	-	1	-	-	-	-	-
Microbiology(32)	-	-	-	-	-	-	-	-	2	2	3	6	-	3	4
Bacteriology(32)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Microbiology/bacteriol(32) .	1	-	3	3	1	6	5	6	-	-	-	-	-	-	-
Molecular biology	-	-	-	-	1	-	-	1	1	-	1	-	-	1	1
Neurosciences	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Nutritional sciences(33) ...	-	1	-	2	2	4	4	3	6	2	4	2	2	4	2
Parasitology	-	-	-	-	2	1	2	2	-	-	1	1	1	-	2
Toxicology(2)	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-
Zoology, other(34)	-	-	-	-	-	-	-	-	-	2	3	1	1	1	-
Zoology(34)	3	1	-	-	2	-	1	-	-	-	-	-	-	-	-
Biological sci, general	-	-	-	-	-	-	-	1	-	2	-	2	2	1	2
Biological sci, other	1	-	-	-	-	-	-	-	-	1	-	1	-	2	1

See footnotes at end of table.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

	Year of doctorate														
Field of study	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
NON-U.S. CITIZENS, TEMPORARY RESIDENTS															
BLACK															
SOCIAL SCIENCES	43	34	66	57	59	57	62	73	81	76	82	71	74	58	62
Agricultural economics	4	3	6	8	9	9	9	18	16	13	11	10	12	3	7
Anthropology	1	1	1	4	6	2	2	7	3	2	3	2	-	3	2
Area studies	2	-	-	-	-	1	-	1	-	1	-	2	1	-	-
Criminology(35)	-	-	-	-	-	-	-	-	-	1	3	-	1	1	-
Demography(2)	-	-	-	-	-	-	-	-	5	3	5	2	6	3	1
Econometrics	-	-	-	-	-	-	1	1	-	-	-	-	-	-	1
Economics	10	12	14	8	11	17	15	12	15	16	18	10	16	15	15
Geography	5	3	2	5	4	4	6	1	5	3	3	5	3	3	2
International relations	4	4	2	4	3	2	4	4	4	7	2	5	5	2	4
Linguistics	-	1	9	4	3	6	2	1	4	4	3	7	4	7	4
Pol sci/government(37)	-	-	-	-	-	-	-	-	12	14	16	7	9	10	9
Political science(37)	-	5	11	12	10	3	6	12	-	-	-	-	-	-	-
Pol sci, public admin(37) ..	9	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Public policy studies(2) ...	-	-	-	-	-	-	-	-	-	1	5	3	-	-	2
Sociology	4	2	11	5	7	8	10	7	9	6	7	10	9	4	9
Statistics	-	-	2	1	-	-	1	1	-	-	2	1	-	1	2
Urban studies(38)	2	-	6	2	3	2	6	4	6	3	2	2	2	3	2
Social sciences, general ...	-	-	-	-	-	2	-	-	-	1	-	3	4	-	-
Social sciences, other	2	2	2	4	3	1	-	4	2	1	2	2	2	3	2
PSYCHOLOGY	2	2	2	2	5	2	3	5	1	1	3	3	4	6	4
Clinical	1	1	1	2	1	1	1	-	-	-	2	1	1	1	2
Cognitive(2)	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Counseling(40)	-	1	-	-	1	1	-	-	-	-	-	-	-	1	1
Developmental(41)	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-
Educational	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-
Experimental(39)	-	-	1	-	-	-	-	-	-	-	-	-	-	1	1
Indust/organizational(42) ..	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-
Physiological(39)	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Psychometrics	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-
School	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Social	-	-	-	-	2	-	1	1	1	-	-	-	1	1	-
Psychology, general	-	-	-	-	1	-	-	-	-	-	-	1	1	-	-
Psychology, other	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
TOTAL, ENGINEERING	12	15	19	21	34	39	39	33	38	51	38	25	31	36	23
Aeronaut/astronautical(43) .	-	1	1	3	1	-	1	-	1	1	-	1	-	-	-
Agricultural	1	1	2	-	3	4	5	3	4	5	4	-	1	4	-
Bioengineering/biomed(44) ..	-	-	-	-	1	-	-	-	-	1	1	-	-	-	1
Ceramic	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Chemical	-	-	3	1	3	5	1	6	1	9	-	1	2	3	1
Civil	-	2	5	4	8	6	4	10	7	9	8	9	15	5	5
Communications(2)	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Computer	-	-	-	-	-	1	-	1	-	1	-	-	1	-	-
Electrical/electronics(45) .	-	-	-	-	-	-	-	-	4	2	5	4	3	4	6
Electrical(45)	4	2	2	1	5	3	3	2	1	-	-	-	-	-	-
Electronics(45)	-	-	-	1	-	1	-	1	-	-	-	-	-	-	-
Engineering mechanics	-	-	2	-	3	3	2	-	1	1	2	-	-	-	-
Engineering physics(46)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Engineering science(2)	-	-	-	-	-	-	-	-	-	1	-	-	-	1	1
Environmental health eng(47)	2	1	1	-	-	-	-	-	-	2	-	-	-	-	-
Fuel tech/petro eng(8)	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Industrial	-	1	-	2	1	2	2	1	3	2	3	-	-	2	-
Materials science	-	1	-	-	-	2	1	-	1	5	-	-	2	5	2
Mechanical	3	3	2	2	1	7	8	3	3	3	6	6	2	4	3
Metallurgical(48)	1	2	1	2	2	3	2	2	3	2	1	2	1	1	-
Mining/mineral(49)	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1
Nuclear(46)	1	-	-	-	-	-	2	-	1	1	2	2	-	3	-
Operations research	-	-	-	2	1	1	2	1	1	1	1	-	2	-	-
Petroleum(50)	-	1	-	1	3	-	5	-	4	2	3	-	1	1	1
Polymer(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Systems(51)	-	-	-	1	1	-	-	-	1	-	-	-	-	2	-
Engineering, general	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-
Engineering, other	-	-	-	-	1	-	1	3	1	1	1	-	1	-	1
TOTAL, NON-SCI/ENGINEERING(52) ...	47	59	104	132	150	145	159	166	152	184	174	118	125	100	103
TOTAL, ALL FIELDS	151	155	249	270	320	331	372	373	363	419	395	313	305	290	272

See footnotes at end of table.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

	Year of doctorate														
Field of study	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
NON-U.S. CITIZENS, TEMPORARY RESIDENTS HISPANIC															
TOTAL, SCIENCE/ENGINEERING	58	76	197	222	273	260	319	226	256	248	284	290	289	291	303
TOTAL, SCIENCES	44	64	156	177	212	211	243	174	185	202	220	230	226	230	234
PHYSICAL SCIENCES	3	7	24	33	22	21	30	24	34	35	45	48	39	34	28
Physics/astronomy	1	5	10	14	8	13	14	16	20	16	20	26	19	17	13
Astronomy(1)	-	-	-	-	1	1	2	-	1	-	-	1	-	1	1
Astrophysics(1)	-	-	1	-	-	-	-	1	2	-	-	2	1	-	-
Atomic/molecular	-	-	-	-	-	-	1	-	-	-	-	2	-	1	-
Elementary particle	1	-	1	7	-	2	2	2	3	2	8	4	5	1	2
Fluids	-	-	-	-	-	-	2	1	-	-	1	-	2	1	-
Nuclear(5)	-	1	-	2	-	-	-	1	1	1	2	4	1	1	2
Optics	-	-	-	-	-	-	-	1	1	-	-	-	1	-	1
Plasma	-	1	1	-	-	-	-	1	1	1	-	1	4	1	-
Polymer(2)	-	-	-	-	-	-	-	-	-	2	-	1	-	-	-
Solid state	-	2	-	3	2	3	4	5	3	4	4	3	1	6	4
Physics, general	-	1	5	1	2	2	3	1	7	3	4	5	2	4	1
Physics, other	-	-	2	1	3	5	-	3	1	3	1	3	2	1	2
Chemistry	2	2	14	19	14	8	16	8	14	19	25	22	20	17	15
Analytical	-	-	-	2	2	-	1	-	-	2	1	2	3	2	-
Inorganic	1	-	3	3	-	2	-	-	3	2	3	-	2	1	2
Nuclear	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Organic	-	-	2	6	3	3	4	4	2	8	8	5	4	3	3
Pharmaceutical	-	-	2	-	-	-	2	-	-	-	-	1	-	-	-
Physical	-	2	2	4	5	1	6	1	2	4	6	5	5	4	4
Polymer	1	-	-	1	1	-	-	-	1	-	1	-	2	1	1
Theoretical	-	-	2	-	-	-	-	1	1	1	-	-	1	2	1
Chemistry, general	-	-	2	2	3	1	1	2	2	-	4	8	2	3	3
Chemistry, other	-	-	1	1	-	1	2	-	3	1	2	1	1	1	1
EARTH, ATMOS, & MARINE SCI	4	4	5	6	10	16	6	8	11	11	8	2	17	12	13
Applied geology(8)	-	-	-	-	-	1	-	1	-	-	1	-	-	-	-
Atmos/meteorol sci, gen(2) .	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Atmos/meteorol sci, other ..	-	-	1	-	1	2	-	-	-	-	-	-	1	-	1
Atmospheric dynamics	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-
Atmospheric phys/chem	-	-	-	1	-	-	-	-	-	-	-	1	-	2	1
Environmental sciences(9) ..	-	-	1	-	-	-	-	1	-	2	1	-	-	-	-
Geochemistry(10)	-	-	-	-	-	-	-	-	1	-	-	-	2	-	1
Geology(11)	-	-	-	-	-	-	-	-	3	1	-	-	2	1	1
Geomorph/glacial geology ...	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Geophysics/seismology(12) ..	-	-	1	-	3	4	2	-	3	3	1	1	6	2	1
Geophysics(12)	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrology/water res(13)	-	1	1	-	-	2	1	2	1	1	2	-	2	-	1
Marine sciences(2)	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1
Meteorology(15)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Minerology, petrology(10) ..	1	-	-	-	1	1	-	1	-	-	-	-	-	-	1
Oceanography	-	-	-	3	4	1	1	2	2	2	-	-	1	2	3
Paleontology	-	-	-	-	-	-	-	-	-	1	1	-	1	-	-
Stratigraphy, sediment	-	1	-	1	-	-	-	-	1	-	-	-	-	1	1
Geological sciences, gen(16)	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1
Geological sciences, oth(16)	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-
Earth sciences, general(16).	-	1	1	-	-	1	1	1	-	-	-	-	-	-	-
Earth sciences, other(16) ..	2	-	-	1	-	3	1	-	-	-	-	-	-	-	-
Physical sciences, other(2).	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
MATHEMATICS	7	5	16	20	19	11	19	17	19	27	19	26	23	24	19
Algebra	-	2	-	-	-	1	1	-	-	1	2	5	4	3	-
Analysis/funct analysis(17).	1	-	1	5	5	2	5	3	2	5	2	5	6	2	5
Applied mathematics	-	-	5	6	6	2	2	3	4	3	4	3	4	5	4
Computing theory	2	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Geometry	-	-	-	2	1	-	-	2	2	-	1	1	-	1	4
Logic	-	-	-	1	-	-	-	-	1	2	-	-	2	-	1
Number theory	1	1	1	-	-	-	-	1	1	-	-	-	1	-	-
Operations research	-	-	-	-	1	1	1	-	1	1	1	-	-	-	-
Probability/math stat (18) .	1	2	2	2	1	1	5	5	6	5	5	8	2	5	4
Topology	-	-	2	-	-	1	1	1	2	1	-	1	1	-	-
Mathematics, general	2	-	2	4	5	3	4	-	-	5	2	1	2	6	1
Mathematics, other	-	-	2	-	-	-	-	2	-	4	2	2	1	2	-
COMPUTER/INFORMATION SCIENCES ..	-	-	1	1	3	3	2	3	6	2	2	5	6	5	6
Computer sciences	-	-	1	1	3	3	2	3	6	2	2	5	6	4	6
Information sci/systems(2) .	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-

See footnotes at end of table.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

Field of study	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
	Year of doctorate														
NON-U.S. CITIZENS, TEMPORARY RESIDENTS															
HISPANIC															
AGRICULTURAL & BIOLOGICAL SCI ..	19	33	63	65	102	104	117	82	80	67	101	78	97	108	108
Agricultural sciences	6	17	36	41	59	62	70	44	38	43	61	42	44	64	55
Agronomy	2	4	5	6	17	12	24	13	5	6	4	8	8	12	9
Animal breeding/genetics(20)	-	-	1	-	1	1	-	1	1	1	1	-	2	3	2
Animal nutrition(21)	-	-	-	-	-	-	-	-	4	4	9	4	2	3	1
Animal sci/nutrition(21) ...	1	3	6	12	6	12	17	4	-	-	-	-	-	-	-
Dairy science(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Poultry science(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Animal sciences, other(21) .	-	-	-	-	-	-	-	-	5	5	4	4	4	6	6
Fish/wildlife(22)	-	-	1	-	-	1	-	1	-	-	-	-	-	-	-
Fisheries science(22)	-	-	-	-	-	-	-	-	1	2	-	-	-	2	3
Wildlife/range mgmt(22)	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
Food sciences(23)	-	-	5	1	4	9	13	4	3	5	5	5	5	1	-
Food engineering(23)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Food sciences, other(23) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	7	10
Forestry science(24)	-	-	-	3	1	5	2	3	2	1	3	2	3	-	-
Forest management(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Renewable natrl resrces(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Forestry&relatd sci, oth(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-
Horticulture science	-	1	2	3	2	4	3	-	3	2	4	2	-	3	2
Plant breeding/genetics(25).	-	-	-	-	-	-	-	-	2	5	9	8	6	7	4
Plant pathology(25)	-	-	-	-	-	-	-	-	5	-	7	2	4	4	1
Phytopathology(25)	3	3	5	5	6	4	3	7	-	-	-	-	-	-	-
Plant protectn-pest mgmt(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Plant sciences, other(25) ..	-	-	-	-	-	-	-	-	-	2	2	2	1	1	-
Soil sciences(26)	-	4	8	7	11	6	5	3	5	8	7	3	7	3	-
Soil chem/microbio(26)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Soil sciences, other(26) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	5	5
Agriculture, general	-	-	1	-	2	-	-	3	1	-	-	1	-	-	-
Agriculture, other	-	2	2	4	9	8	3	5	1	2	6	1	2	-	2
Biological sciences	13	16	27	24	43	42	47	38	42	24	40	36	53	44	53
Anatomy	-	-	1	3	-	-	-	1	1	-	-	1	1	-	1
Biochemistry	-	3	2	6	3	4	2	1	2	2	4	4	7	3	8
Biometrics/biostat	-	1	2	1	-	1	-	1	-	1	-	-	-	1	-
Biophysics	2	-	1	-	2	3	5	4	2	1	-	-	-	1	3
Botany, other(27)	-	-	-	-	-	-	-	-	-	1	3	-	3	3	4
Botany(27)	1	3	-	-	4	4	6	4	-	-	-	-	-	-	-
Cell biology(28)	-	-	-	-	-	-	-	-	1	-	1	-	1	3	-
Cytology(28)	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-
Ecology	4	-	-	2	2	1	3	2	3	2	5	7	3	5	4
Endocrinology(2)	-	-	-	-	-	-	-	-	1	-	-	1	-	-	3
Entomology	1	3	4	1	11	7	5	2	6	2	6	4	6	5	4
Human/animal genetics(29) ..	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-
Plant genetics(29)	-	-	-	-	-	-	-	-	3	1	2	-	-	1	1
Genetics(29)	-	2	2	2	3	1	6	2	-	-	-	-	-	-	-
Human/animal pathology(30) .	-	-	-	-	-	-	-	-	-	1	1	-	2	-	2
Plant pathology(30)	-	-	-	-	-	-	-	-	1	1	-	-	3	1	1
Pathology(30)	-	-	3	-	4	-	2	-	-	-	-	-	-	-	-
Human/animal pharmacol	-	1	-	2	-	1	-	1	1	1	-	1	4	-	2
Human/animal physiol(31) ...	-	-	-	-	-	-	-	-	3	2	1	3	3	1	1
Animal physiology(31)	-	-	1	1	2	2	2	4	-	-	-	-	-	-	-
Plant physiology(31)	-	-	1	-	2	3	1	1	4	2	1	-	1	2	1
Immunology	-	-	1	-	-	1	1	1	2	-	1	-	3	1	-
Microbiology(32)	-	-	-	-	-	-	-	-	4	1	2	6	3	1	3
Bacteriology(32)	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Microbiology/bacteriol(32) .	1	-	1	3	3	3	5	6	-	-	-	-	-	-	-
Molecular biology	-	-	1	1	2	1	-	2	-	1	2	-	1	1	3
Neurosciences	-	-	-	-	-	-	-	-	2	1	3	-	2	2	2
Nutritional sciences(33) ...	-	-	4	2	2	2	3	2	2	1	2	1	1	5	1
Parasitology	-	-	1	-	-	3	-	2	-	-	1	1	-	1	-
Zoology, other(34)	-	-	-	-	-	-	-	-	2	1	-	1	1	2	-
Zoology(34)	4	1	1	-	-	2	2	1	-	-	-	-	-	-	-
Biological sci, general	-	2	1	-	1	3	2	1	1	2	2	3	4	4	9
Biological sci, other	-	-	-	-	2	-	-	-	-	-	3	3	2	1	-

See footnotes at end of table.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

	Year of doctorate														
Field of study	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
NON-U.S. CITIZENS, TEMPORARY RESIDENTS															
HISPANIC															
SOCIAL SCIENCES	10	13	44	49	47	50	62	37	28	48	41	60	35	42	51
Agricultural economics	2	9	9	8	9	11	16	7	4	5	5	2	2	6	4
Anthropology	1	1	1	3	1	1	3	-	2	2	2	5	2	1	4
Area studies	-	-	-	-	-	1	-	-	-	1	-	1	-	-	-
Demography(2)	-	-	-	-	-	-	-	-	1	-	2	-	1	1	-
Econometrics	1	-	1	1	-	1	-	-	-	2	-	-	2	1	1
Economics	1	1	16	25	20	21	24	18	10	22	19	32	21	18	29
Geography	-	-	-	3	-	1	1	1	-	2	1	4	-	-	-
International relations	-	-	-	-	1	-	2	2	1	2	1	1	-	-	-
Linguistics	2	1	2	2	-	2	6	2	3	3	2	3	-	2	5
Pol sci/government(37)	-	-	-	-	-	-	-	-	1	-	2	1	2	2	1
Political science(37)	-	-	2	3	6	5	1	2	-	-	-	-	-	-	-
Sociology	2	-	8	3	5	5	6	1	3	4	4	3	2	7	6
Statistics	-	1	2	-	1	1	1	2	1	2	3	4	-	-	-
Urban studies(38)	1	-	2	1	2	1	1	2	-	1	-	2	-	1	-
Social sciences, general	-	-	-	-	1	-	-	-	-	-	-	-	1	2	-
Social sciences, other	-	-	1	-	1	-	1	-	2	2	-	2	2	1	1
PSYCHOLOGY	1	2	3	3	9	6	7	3	7	12	4	11	9	5	9
Clinical	-	-	-	-	1	2	-	-	1	1	-	1	3	3	-
Cognitive(2)	-	-	-	-	-	-	-	-	-	1	-	-	1	-	2
Counseling(40)	-	-	-	1	1	-	-	-	-	1	-	1	-	-	-
Developmental(41)	-	-	-	-	1	-	1	-	1	2	-	2	2	-	-
Educational	-	-	-	-	1	-	1	-	-	1	-	-	1	-	3
Experimental(39)	-	-	2	1	2	1	1	-	1	2	-	3	-	-	1
Indust/organizational(42)	-	-	1	-	-	1	-	-	-	-	1	-	1	-	-
Physiological(39)	-	-	-	-	-	-	1	-	1	1	-	-	-	-	-
Quantitative(2)	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Psychometrics	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
School	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Social	-	-	-	1	1	-	-	2	1	1	-	2	-	-	1
Psychology, general	1	-	-	-	1	2	2	-	2	1	1	2	1	1	-
Psychology, other	-	1	-	-	-	-	1	1	-	1	1	-	-	1	2
TOTAL, ENGINEERING	14	12	41	45	61	49	76	52	71	46	64	60	63	61	69
Aeronaut/astronautical(43)	-	-	1	-	-	-	4	-	1	1	1	1	2	2	1
Agricultural	1	-	-	2	3	2	10	1	4	5	3	2	5	2	3
Bioengineering/biomed(44)	-	-	-	-	-	1	-	-	-	1	3	2	1	1	2
Ceramic	-	-	-	-	-	-	1	1	-	-	-	1	-	-	1
Chemical	2	3	6	11	11	5	12	8	16	7	12	8	7	12	10
Civil	2	-	7	10	11	8	10	4	9	7	9	12	14	16	11
Communications(2)	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1
Computer	-	1	1	3	3	-	2	4	1	-	-	-	-	1	-
Electrical/electronics(45)	-	-	-	-	-	-	-	-	7	8	9	6	6	5	9
Electrical(45)	2	2	3	5	8	5	5	6	1	-	-	-	-	-	-
Electronics(45)	-	-	6	-	2	-	-	3	-	-	-	-	-	-	-
Engineering mechanics	1	-	-	2	1	1	-	1	-	2	1	2	1	1	2
Engineering physics(46)	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Engineering science(2)	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1
Environmental health eng(47)	-	-	1	1	1	-	1	5	1	-	-	1	1	2	-
Fuel tech/petro eng(8)	2	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Industrial	1	1	-	-	-	1	1	-	4	1	4	-	3	4	8
Materials science	-	-	2	2	3	4	3	3	6	-	2	4	2	-	-
Mechanical	-	-	3	1	3	6	7	4	5	4	4	7	7	5	8
Metallurgical(48)	-	2	-	2	3	5	4	4	2	1	3	1	2	2	2
Mining/mineral(49)	-	-	-	-	-	-	-	-	2	-	-	2	1	-	3
Nuclear(46)	1	1	1	2	2	4	6	3	3	3	6	1	-	1	3
Ocean(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Operations research	-	1	2	2	3	-	4	3	2	-	-	3	3	-	1
Petroleum(50)	-	-	1	-	1	2	-	1	2	2	1	2	-	2	-
Polymer(2)	-	-	-	-	-	-	-	-	-	-	1	-	1	1	1
Systems(51)	-	1	-	1	2	3	3	-	1	2	1	2	2	-	-
Engineering, general	1	-	1	1	1	-	-	-	2	1	-	-	-	1	-
Engineering, other	1	-	4	-	3	2	3	1	2	1	3	3	4	2	2
TOTAL, NON-SCI/ENGINEERING(52)	12	17	35	67	75	68	70	68	86	52	77	82	49	57	53
TOTAL, ALL FIELDS	70	93	232	289	348	328	389	294	342	300	361	372	338	348	356

See footnotes at end of table.

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Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

Field of study	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
	Year of doctorate														
NON-U.S. CITIZENS, TEMPORARY RESIDENTS															
WHITE															
TOTAL, SCIENCE/ENGINEERING	1074	1013	1065	986	863	918	994	1014	1128	1073	1139	1139	1171	1267	1360
TOTAL, SCIENCES	770	748	726	667	587	634	690	686	753	726	778	791	796	856	876
PHYSICAL SCIENCES	133	145	132	113	113	115	101	132	160	125	153	170	186	183	171
Physics/astronomy	78	83	79	61	70	65	55	80	94	80	85	102	109	109	114
Acoustics	1	-	-	-	2	-	1	1	-	3	-	1	3	-	1
Astronomy(1)	4	6	2	1	3	1	2	2	3	4	1	5	4	5	3
Astrophysics(1)	7	7	3	7	2	6	2	4	5	3	3	4	3	5	8
Atomic/molecular	6	6	4	6	2	2	3	10	4	4	6	5	3	5	7
Electron(2)	-	-	-	-	-	-	-	-	-	-	1	-	-	-	2
Electromagnetism(3)	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-
Elementary particle	7	15	15	12	8	13	10	12	23	15	17	22	25	28	13
Fluids	1	1	1	-	-	2	1	1	-	-	1	2	2	2	1
Mechanics(4)	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nuclear(5)	8	9	6	3	6	6	4	5	9	5	9	11	6	12	6
Optics	4	4	4	4	4	1	5	5	4	4	1	4	2	1	6
Plasma	2	3	5	5	4	5	3	3	8	4	3	6	4	2	6
Polymer(2)	-	-	-	-	-	-	-	-	1	-	2	-	2	1	1
Solid state	17	14	16	10	9	10	12	12	14	20	18	20	20	15	23
Physics, general	10	11	14	11	21	16	10	19	18	13	16	16	21	26	27
Physics, other	10	7	9	1	8	3	2	6	5	5	7	6	14	7	10
Chemistry	55	62	53	52	43	50	46	52	66	45	68	68	77	74	57
Agricultural/food	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-
Analytical	4	7	2	4	5	3	6	4	8	5	8	9	12	4	5
Inorganic	5	2	7	7	1	8	5	8	6	5	16	10	8	14	11
Nuclear	1	1	-	-	-	1	1	3	-	2	1	1	-	-	-
Organic	21	11	17	7	10	10	7	13	16	11	11	13	20	20	14
Pharmaceutical	3	2	3	1	-	2	2	2	2	-	-	2	5	4	-
Physical	6	15	7	9	7	7	9	6	19	12	11	11	8	11	9
Polymer	-	3	1	4	9	2	3	2	2	2	-	1	3	2	1
Theoretical	3	2	2	3	3	3	2	3	1	1	2	3	1	4	3
Chemistry, general	10	16	10	14	4	12	9	6	8	5	14	13	15	12	8
Chemistry, other	2	3	4	2	3	2	2	5	4	2	5	5	5	3	6
EARTH, ATMOS, & MARINE SCI	48	39	53	35	25	31	43	31	34	39	45	42	40	41	42
Applied geology(8)	4	2	2	-	-	2	3	1	1	1	-	-	2	-	-
Atmos/meteorol sci, gen(2)	-	-	-	-	-	-	-	-	2	1	-	-	1	-	3
Atmos/meteorol sci, other	-	2	4	-	2	1	6	2	1	2	-	2	1	-	-
Atmospheric dynamics	-	1	2	1	2	2	1	-	1	3	2	4	-	4	-
Atmospheric phys/chem	-	1	1	-	-	-	-	-	1	-	-	-	1	2	2
Environmental sciences(9)	5	2	2	-	1	3	4	2	1	1	2	-	1	-	2
Geochemistry(10)	5	4	1	2	5	4	-	2	-	4	8	4	1	3	3
Geology(11)	-	-	-	-	-	-	-	-	9	11	13	3	5	6	9
Structural geology(11)	1	1	3	1	3	-	-	1	-	-	-	-	-	-	-
Geomorph/glacial geology	1	1	1	-	-	2	1	2	-	-	-	-	1	1	-
Geophysics/seismology(12)	-	5	6	3	2	6	3	6	4	-	5	8	12	5	6
Geophysics(12)	8	2	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrology/water res(13)	-	3	4	8	1	2	5	1	4	1	1	1	3	5	1
Marine sciences(2)	-	-	-	-	-	-	-	-	1	2	1	2	-	1	3
Marine sciences, other(14)	-	-	-	-	1	-	1	4	-	-	-	-	-	-	-
Meteorology(15)	6	2	-	-	-	-	-	-	-	2	2	4	1	6	-
Minerology, petrology(10)	6	-	2	-	-	-	2	1	1	-	2	-	-	1	1
Oceanography	5	2	9	8	-	2	5	2	2	4	4	10	4	4	4
Paleontology	1	2	-	-	1	1	-	-	-	2	-	1	1	1	-
Stratigraphy, sediment	1	4	6	2	2	2	4	-	4	1	1	-	1	1	2
Geological sciences, gen(16)	-	-	-	-	-	-	-	-	-	1	1	1	2	-	1
Geological sciences, oth(16)	-	-	-	-	-	-	-	-	1	2	3	1	2	-	4
Earth sciences, general(16)	3	4	4	6	1	3	6	4	-	-	-	-	-	-	-
Earth sciences, other(16)	2	1	6	4	4	1	2	3	-	-	-	-	-	-	-
Physical sciences, other(2)	-	-	-	-	-	-	-	-	1	1	-	1	1	1	1
MATHEMATICS	79	84	71	68	66	58	71	84	90	88	97	101	102	107	120
Algebra	8	6	7	6	5	1	5	6	10	9	11	8	4	5	5
Analysis/funct analysis(17)	14	9	14	5	8	6	14	12	11	10	14	18	17	9	19
Applied mathematics	5	11	6	10	12	8	11	8	14	12	14	18	16	23	21
Computing theory	15	10	5	6	2	-	3	1	1	3	1	1	1	1	-
Geometry	2	4	4	-	1	2	1	3	8	3	4	4	6	10	4
Logic	2	2	3	2	3	-	1	-	1	5	6	3	4	5	3
Number theory	3	-	2	-	-	3	1	2	3	4	2	-	1	7	2
Operations research	7	4	5	6	9	4	2	8	6	3	5	3	5	5	4
Probability/math stat (18)	10	17	8	16	12	16	15	21	15	24	19	13	16	26	15
Topology	6	8	5	4	4	4	4	2	5	3	6	7	7	1	5
Mathematics, general	5	12	10	10	10	9	9	18	9	8	9	18	19	9	36
Mathematics, other	2	1	2	3	-	5	5	3	7	4	6	8	6	6	6
COMPUTER/INFORMATION SCIENCES	-	-	1	9	15	23	23	26	33	30	31	39	40	44	43
Computer sciences	-	-	1	9	15	23	23	26	30	24	25	33	32	39	40
Information sci/systems(2)	-	-	-	-	-	-	-	-	3	6	6	6	8	5	3

See footnotes at end of table.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

	Year of doctorate														
Field of study	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
NON-U.S. CITIZENS, TEMPORARY RESIDENTS															
WHITE															
AGRICULTURAL & BIOLOGICAL SCI ..	192	176	193	164	141	182	171	185	191	189	210	188	191	220	233
Agricultural sciences	79	72	70	76	63	90	93	69	97	83	96	90	69	91	83
Agric business & mgmt (19) .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Agronomy	11	16	12	11	13	19	10	12	23	13	16	13	7	15	12
Animal breeding/genetics(20)	2	2	2	1	1	-	-	1	2	2	4	4	3	3	2
Animal nutrition(21)	-	-	-	-	-	-	-	-	4	6	7	5	4	4	6
Animal sci/nutrition(21) ...	11	10	7	6	9	7	17	12	-	-	-	-	-	-	-
Dairy science(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Poultry science(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
Animal sciences, other(21) .	-	-	-	-	-	-	-	-	9	4	9	5	8	5	8
Fish/wildlife(22)	1	2	2	-	1	2	1	-	-	-	-	-	-	-	-
Fisheries science(22)	-	-	-	-	-	-	-	-	1	1	-	1	2	2	1
Wildlife management(22)	-	-	-	-	-	-	-	-	5	2	2	2	1	-	-
Wildlife/range mgmt(22)	-	-	-	-	-	-	-	-	-	-	-	-	-	4	3
Food sciences(23)	13	8	12	11	11	13	10	9	10	8	15	8	7	4	-
Food engineering(23)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Food sciences, other(23) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	8	9
Forestry science(24)	6	8	2	7	3	5	8	3	4	5	5	7	6	1	-
Forest biology(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Forest management(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
Wood science(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Renewable natrl resrces(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Forestry&relatd sci, oth(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	4	5
Horticulture science	7	4	4	8	3	10	13	8	6	8	7	4	4	10	4
Plant breeding/genetics(25).	-	-	-	-	-	-	-	-	5	3	3	11	7	4	1
Plant pathology(25)	-	-	-	-	-	-	-	-	10	5	3	7	5	4	7
Phytopathology(25)	9	6	7	8	3	17	6	8	-	-	-	-	-	-	-
Plant protectn-pest mgmt(25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Plant sciences, other(25) ..	-	-	-	-	-	-	-	-	-	-	4	1	3	1	1
Soil sciences(26)	12	10	9	16	9	11	15	7	13	21	11	18	7	3	-
Soil chem/microbio(26)	-	-	-	-	-	-	-	-	-	-	-	-	-	3	1
Soil sciences, other(26) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	9	11
Agriculture, general	1	2	1	1	-	-	1	-	2	-	-	1	1	1	-
Agriculture, other	6	4	12	7	10	6	12	9	3	5	10	3	4	1	1
Biological sciences	113	104	123	88	78	92	78	116	94	106	114	98	122	129	150
Anatomy	3	1	2	-	1	1	1	2	1	3	5	1	3	2	2
Biochemistry	16	15	19	15	8	11	10	11	16	12	12	14	17	13	25
Biometrics/biostat	2	3	5	1	3	3	4	3	1	2	2	1	4	2	2
Biophysics	2	2	6	1	2	2	3	3	3	-	3	3	6	3	2
Botany, other(27)	-	-	-	-	-	-	-	-	3	2	5	-	3	3	3
Botany(27)	6	5	7	5	5	-	3	6	-	-	-	-	-	-	-
Cell biology(28)	-	-	-	-	-	-	-	-	3	1	3	5	3	-	4
Cytology(28)	-	-	-	2	-	1	-	1	-	-	-	-	-	-	-
Ecology	3	4	5	4	-	4	5	5	5	8	7	9	7	9	9
Embryology	-	-	-	-	-	-	1	-	1	2	-	-	1	-	-
Endocrinology(2)	-	-	-	-	-	-	-	-	-	-	1	-	1	-	3
Entomology	12	3	11	10	9	7	8	13	8	13	5	7	2	7	9
Human/animal genetics(29) ..	-	-	-	-	-	-	-	-	1	1	4	-	2	3	4
Plant genetics(29)	-	-	-	-	-	-	-	-	2	-	2	-	1	5	4
Genetics(29)	11	10	2	3	7	9	7	7	-	-	-	-	-	-	-
Human/animal pathology(30) .	-	-	-	-	-	-	-	-	7	4	6	3	5	2	2
Plant pathology(30)	-	-	-	-	-	-	-	-	1	1	2	-	3	2	1
Pathology(30)	1	4	2	2	2	6	8	5	-	-	-	-	-	-	-
Human/animal pharmacol	2	6	4	2	6	4	3	7	8	5	4	3	5	6	8
Human/animal physiol(31) ...	-	-	-	-	-	-	-	-	6	9	8	7	7	7	7
Animal physiology(31)	10	7	15	4	4	6	4	10	-	-	-	-	-	-	-
Plant physiology(31)	6	6	4	3	4	1	1	4	3	2	2	-	1	5	3
Immunology	2	6	1	4	-	2	-	4	3	5	5	3	2	3	4
Microbiology(32)	-	-	-	-	-	-	-	-	2	9	7	9	13	9	12
Bacteriology(32)	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-
Microbiology/bacteriol(32) .	7	5	11	9	4	3	9	9	-	-	-	-	-	-	-
Molecular biology	6	3	6	4	2	9	1	7	8	7	7	7	11	13	13
Neurosciences	-	-	-	-	-	-	-	1	2	5	6	4	1	4	5
Nutritional sciences(33) ...	-	7	8	5	3	3	-	4	1	2	5	3	4	5	3
Parasitology	3	-	1	1	1	1	-	-	1	2	-	1	-	-	3
Toxicology(2)	-	-	-	-	-	-	-	-	1	-	2	2	2	1	2
Zoology, other(34)	-	-	-	-	-	-	-	-	2	5	1	8	5	4	9
Zoology(34)	5	4	4	3	5	5	4	3	-	-	-	-	-	-	-
Biological sci, general	3	7	5	7	4	7	1	7	3	4	5	8	8	10	8
Biological sci, other	13	6	5	3	8	7	5	4	1	2	5	-	5	10	3

See footnotes at end of table.

Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

	Year of doctorate														
Field of study	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
NON-U.S. CITIZENS, TEMPORARY RESIDENTS															
WHITE															
SOCIAL SCIENCES	250	247	223	240	190	175	233	186	202	206	195	209	186	224	214
Agricultural economics	17	20	15	24	20	11	12	17	9	16	14	11	6	15	13
Anthropology	15	12	11	17	8	8	11	14	10	11	6	10	6	11	7
Area studies	1	2	1	3	1	-	1	-	-	1	-	2	1	-	-
Criminology(35)	-	-	-	-	-	2	-	-	2	3	-	-	-	1	-
Demography(2)	-	-	-	-	-	-	-	-	2	3	1	-	3	3	1
Econometrics	4	1	3	3	2	-	2	3	2	5	6	2	2	10	5
Economics	81	95	84	82	76	68	89	68	75	78	77	78	70	95	80
Geography	9	12	16	12	6	8	10	8	10	10	11	6	7	13	10
History of science(36)	1	3	1	1	2	-	4	3	-	-	2	6	1	-	2
International relations	7	5	8	7	5	8	5	6	4	10	3	5	13	5	7
Linguistics	16	14	12	20	18	16	19	16	20	19	13	19	18	15	20
Pol sci/government(37)	-	-	-	-	-	-	-	-	19	18	19	25	25	23	24
Political science(37)	-	35	30	21	15	17	27	13	-	-	-	-	-	-	-
Pol sci, public admin(37)	31	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Public policy studies(2)	-	-	-	-	-	-	-	-	4	3	1	4	4	1	2
Sociology	49	28	22	27	25	20	25	17	21	19	16	25	12	20	24
Statistics	5	3	4	5	2	1	6	9	12	3	6	7	4	4	6
Urban studies(38)	6	7	9	5	7	10	7	3	5	3	10	3	2	6	6
Social sciences, general	1	-	1	4	2	-	3	-	-	1	2	1	6	-	1
Social sciences, other	7	9	6	9	1	6	12	9	7	3	8	5	6	2	6
PSYCHOLOGY	68	57	53	38	37	50	48	42	43	49	47	42	51	37	53
Clinical	10	6	5	8	3	8	9	11	7	5	3	10	16	8	7
Cognitive(2)	-	-	-	-	-	-	-	-	4	5	1	3	3	4	4
Comparative(39)	1	2	-	-	-	-	-	1	-	-	-	-	-	-	-
Counseling(40)	5	5	5	5	4	-	7	7	6	6	2	3	5	3	3
Developmental(41)	4	4	3	3	3	3	1	4	2	6	7	6	4	1	7
Educational	3	1	6	1	3	1	1	1	4	5	2	1	3	-	3
Experimental(39)	10	9	11	6	5	9	5	5	6	1	7	5	2	5	4
Indust/organizational(42)	3	4	2	1	2	-	2	-	-	3	1	2	2	1	4
Physiological(39)	4	3	3	3	1	2	1	1	2	2	5	1	3	4	-
Quantitative(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Personality	-	3	1	1	1	1	1	-	-	1	-	-	1	-	3
Psychometrics	2	2	1	-	-	-	1	-	-	-	1	-	-	-	-
School	1	-	-	-	2	1	1	-	-	2	-	-	2	1	2
Social	16	13	6	5	4	5	5	4	5	2	5	4	4	3	7
Psychology, general	5	3	5	1	3	5	4	3	5	5	9	2	3	5	5
Psychology, other	4	2	5	4	6	15	10	5	2	6	4	5	3	1	4
TOTAL, ENGINEERING	304	265	339	319	276	284	304	328	375	347	361	348	375	411	484
Aeronaut/astronautical(43)	13	15	18	19	10	14	11	13	17	12	18	10	17	14	25
Agricultural	6	4	5	6	11	14	10	6	15	5	10	6	7	4	8
Bioengineering/biomed(44)	2	3	5	5	2	2	2	3	9	6	6	1	10	9	6
Ceramic	2	-	1	1	-	-	1	1	-	1	-	3	1	3	1
Chemical	30	26	42	32	37	25	34	25	26	24	34	30	34	29	46
Civil	44	50	44	43	37	56	64	64	71	64	56	55	70	82	90
Communications(2)	-	-	-	-	-	-	-	-	4	-	4	2	5	4	4
Computer	17	11	21	14	6	6	6	12	9	6	5	9	8	13	11
Electrical/electronics(45)	-	-	-	-	-	-	-	-	61	80	82	98	77	92	118
Electrical(45)	61	33	51	56	39	41	43	59	9	-	1	-	-	-	-
Electronics(45)	4	13	9	8	17	10	8	10	2	-	-	-	-	-	-
Engineering mechanics	15	10	13	14	12	10	7	14	13	10	10	9	11	13	11
Engineering physics(46)	2	-	1	1	1	1	5	-	2	-	3	-	-	1	1
Engineering science(2)	-	-	-	-	-	-	-	-	2	8	4	3	3	1	2
Environmental health eng(47)	2	8	5	5	2	4	6	5	2	2	2	2	1	6	4
Fuel tech/petro eng(8)	1	-	-	1	1	-	-	-	-	-	-	-	-	-	-
Industrial	7	6	10	3	7	13	7	7	12	13	11	14	14	19	12
Materials science	8	5	13	9	11	7	6	10	10	6	15	13	13	13	5
Mechanical	25	26	36	34	37	30	30	37	41	50	44	53	59	56	75
Metallurgical(48)	6	13	9	4	4	5	7	6	6	12	3	4	5	3	5
Mining/mineral(49)	1	-	1	1	1	2	1	-	4	2	4	3	3	-	1
Naval arch/marine engin(2)	-	-	-	-	-	-	-	-	2	1	1	2	1	2	2
Nuclear(46)	11	13	9	10	11	16	18	16	21	15	10	5	8	9	11
Ocean(2)	-	-	-	-	-	-	-	-	3	1	2	-	1	1	2
Operations research	18	4	14	12	6	5	6	6	7	6	9	4	3	7	12
Petroleum(50)	3	6	6	9	4	2	6	-	3	-	4	3	4	5	9
Polymer(2)	-	-	-	-	-	-	-	-	4	4	3	1	3	1	3
Systems(51)	9	6	10	13	7	8	9	14	11	6	11	1	5	6	4
Engineering, general	3	4	5	4	3	1	4	2	3	5	-	9	5	5	7
Engineering, other	14	9	11	15	10	12	13	18	6	8	9	8	7	13	9
TOTAL, NON-SCI/ENGINEERING(52)	375	375	383	386	400	413	438	444	411	422	428	367	393	414	365
TOTAL, ALL FIELDS	1449	1388	1448	1372	1263	1331	1432	1458	1539	1495	1567	1506	1564	1681	1725

See footnotes at end of table.

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Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

	Year of doctorate														
Field of study	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
NON-U.S. CITIZENS, TEMPORARY RESIDENTS OTHER/UNKNOWN RACE															
TOTAL, SCIENCE/ENGINEERING	617	591	314	126	143	130	128	175	178	240	288	325	358	283	277
TOTAL, SCIENCES	415	393	221	99	106	99	98	123	120	164	183	224	254	194	183
PHYSICAL SCIENCES	102	80	50	17	27	21	23	22	23	26	34	45	51	40	35
Physics/astronomy	66	48	34	6	17	15	11	12	11	19	18	21	30	29	20
Astronomy(1)	1	1	-	-	-	-	-	-	-	1	-	1	-	2	1
Astrophysics(1)	-	1	1	-	1	-	-	-	-	1	1	-	2	1	-
Atomic/molecular	10	2	1	1	1	-	-	-	-	2	1	3	2	-	-
Elementary particle	7	3	4	1	2	3	-	3	3	3	5	2	1	3	-
Fluids	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Nuclear(5)	8	4	2	-	2	1	1	-	-	1	-	1	3	-	2
Optics	1	-	-	-	-	-	-	-	1	-	-	1	1	-	-
Plasma	2	-	2	-	1	-	1	-	1	1	-	1	3	-	-
Polymer(2)	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-
Solid state	10	16	12	3	3	5	2	4	3	4	4	7	8	7	5
Thermal(7)	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-
Physics, general	18	19	9	1	5	5	6	5	2	3	6	2	9	9	8
Physics, other	8	2	2	-	2	1	-	-	1	3	1	3	1	5	3
Chemistry	36	32	16	11	10	6	12	10	12	7	16	24	21	11	15
Agricultural/food	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Analytical	2	3	-	-	-	1	1	2	3	-	1	2	2	1	1
Inorganic	-	2	3	-	-	-	1	2	2	1	2	1	3	3	1
Nuclear	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-
Organic	13	10	5	-	1	1	2	2	-	2	3	9	2	3	3
Pharmaceutical	2	1	-	1	1	1	-	-	2	-	-	-	2	1	2
Physical	7	6	-	3	2	-	3	1	1	-	2	5	2	1	4
Polymer	2	1	2	1	1	1	-	-	1	1	2	-	2	-	1
Theoretical	2	-	1	3	1	-	-	-	-	-	-	-	-	-	-
Chemistry, general	7	9	5	3	2	2	5	2	1	1	4	5	6	1	3
Chemistry, other	-	-	-	-	2	-	-	1	1	2	2	2	2	-	-
EARTH, ATMOS, & MARINE SCI	20	17	5	2	5	3	7	1	6	5	7	9	10	10	6
Applied geology(8)	2	2	-	-	-	-	-	1	-	-	-	-	-	-	-
Atmos/meteorol sci, gen(2) .	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-
Atmos/meteorol sci, other ..	-	2	-	-	1	-	1	-	1	-	-	-	-	-	-
Atmospheric dynamics	-	1	-	-	-	-	1	-	1	1	1	-	-	-	-
Atmospheric phys/chem	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-
Environmental sciences(9) ..	2	1	-	-	1	-	-	-	-	-	-	-	-	-	1
Geochemistry(10)	2	1	-	-	1	-	-	-	-	-	-	-	2	1	-
Geology(11)	-	-	-	-	-	-	-	-	-	1	1	3	1	2	1
Geomorph/glacial geology ...	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-
Geophysics/seismology(12) ..	-	1	2	1	1	-	-	-	2	-	1	1	3	4	1
Geophysics(12)	6	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrology/water res(13)	-	-	-	-	1	-	-	-	-	1	-	-	1	1	1
Marine sciences(2)	-	-	-	-	-	-	-	-	1	-	1	-	1	-	-
Meteorology(15)	2	-	-	-	-	-	-	-	1	-	1	1	-	-	1
Minerology, petrology(10) ..	1	-	-	-	-	-	1	-	-	-	-	1	-	-	-
Oceanography	-	2	-	-	-	-	-	-	-	1	1	2	-	-	-
Paleontology	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stratigraphy, sediment	-	2	1	-	-	-	-	-	-	-	-	-	-	-	-
Geological sciences, gen(16)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Geological sciences, oth(16)	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Earth sciences, general(16).	2	2	2	-	-	3	3	-	-	-	-	-	-	-	-
Earth sciences, other(16) ..	2	2	-	-	-	-	1	-	-	-	-	-	-	-	-
Physical sciences, other(2).	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
MATHEMATICS	35	33	18	6	5	3	6	9	10	6	11	14	39	20	15
Algebra	4	4	2	-	-	-	-	-	1	1	-	3	3	1	-
Analysis/funct analysis(17).	6	5	2	2	1	1	1	2	-	2	1	2	8	2	4
Applied mathematics	-	6	-	1	1	-	1	-	4	1	1	2	1	2	4
Computing theory	2	1	1	-	-	-	-	1	-	-	-	-	-	-	-
Geometry	-	-	-	-	-	-	-	-	1	-	2	-	5	-	-
Logic	1	4	-	1	-	-	-	-	-	-	-	-	1	-	-
Number theory	1	1	-	-	-	-	-	-	1	-	-	2	-	-	1
Operations research	1	-	2	-	-	1	1	1	-	1	-	-	2	-	1
Probability/math stat (18) .	8	7	4	1	1	1	-	2	-	-	-	1	7	6	2
Topology	1	1	2	-	2	-	-	-	1	-	1	-	1	2	-
Mathematics, general	11	4	3	1	-	-	3	3	2	1	5	2	7	6	2
Mathematics, other	-	-	2	-	-	-	-	-	-	-	1	2	4	1	1
COMPUTER/INFORMATION SCIENCES ..	-	-	1	3	1	3	2	-	1	3	7	8	10	11	7
Computer sciences	-	-	1	3	1	3	2	-	-	2	5	8	9	9	6
Information sci/systems(2) .	-	-	-	-	-	-	-	-	1	1	2	-	1	2	1

See footnotes at end of table.

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Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

Field of study	Year of doctorate														
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
NON-U.S. CITIZENS, TEMPORARY RESIDENTS OTHER/UNKNOWN RACE															
AGRICULTURAL & BIOLOGICAL SCI ..	139	114	72	32	28	29	25	33	41	60	52	61	70	56	63
Agricultural sciences	77	60	38	17	12	18	10	16	17	32	27	33	32	28	37
Agronomy	22	17	7	4	1	3	1	4	2	6	4	5	6	6	5
Animal breeding/genetics(20)	-	-	-	-	-	-	-	-	2	2	-	2	-	-	2
Animal nutrition(21)	-	-	-	-	-	-	-	-	-	-	-	2	2	2	1
Animal sci/nutrition(21) ...	12	3	4	1	3	1	1	1	-	-	-	-	-	-	-
Dairy science(21)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Animal sciences, other(21) .	-	-	-	-	-	-	-	-	1	4	2	4	1	1	3
Fish/wildlife(22)	1	1	-	-	-	2	-	2	-	-	-	-	-	-	-
Fisheries science(22)	-	-	-	-	-	-	-	-	-	-	-	2	1	-	-
Wildlife/range mgmt(22)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Food sciences(23)	7	5	7	2	-	1	-	4	2	5	5	4	6	-	-
Food engineering(23)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Food sciences, other(23) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	3	7
Forestry science(24)	2	2	1	3	1	-	1	-	-	1	-	4	1	-	-
Wood science(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Forestry&relatd sci, oth(24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Horticulture science	4	3	5	2	-	-	2	1	2	1	3	2	4	4	2
Plant breeding/genetics(25).	-	-	-	-	-	-	-	-	2	3	-	2	1	1	2
Plant pathology(25)	-	-	-	-	-	-	-	-	3	2	3	3	1	3	1
Phytopathology(25)	5	8	3	2	3	2	-	-	-	-	-	-	-	-	-
Plant sciences, other(25) ..	-	-	-	-	-	-	-	-	-	-	1	-	2	1	2
Soil sciences(26)	10	12	7	2	1	5	1	1	2	7	5	3	3	-	-
Soil chem/microbio(26)	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1
Soil sciences, other(26) ...	-	-	-	-	-	-	-	-	-	-	-	-	-	2	5
Agriculture, general	2	-	-	-	-	1	1	-	-	-	-	-	1	1	1
Agriculture, other	12	9	4	1	3	3	3	3	1	1	4	-	3	1	1
Biological sciences	62	54	34	15	16	11	15	17	24	28	25	28	38	28	26
Anatomy	1	-	1	1	-	-	1	1	-	1	-	2	1	-	1
Biochemistry	11	13	3	2	-	1	2	2	5	1	4	3	9	3	5
Biometrics/biostat	1	1	1	1	-	-	1	-	-	1	-	-	1	-	-
Biophysics	1	3	2	-	-	-	1	-	-	-	2	1	-	-	-
Botany, other(27)	-	-	-	-	-	-	-	-	2	1	1	2	1	1	3
Botany(27)	3	2	-	-	1	-	2	1	-	-	-	-	-	-	-
Cytology(28)	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ecology	2	-	3	-	1	1	1	-	2	-	2	-	2	1	-
Embryology	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Entomology	8	3	4	1	2	4	1	4	4	3	4	2	3	1	-
Human/animal genetics(29) ..	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-
Plant genetics(29)	-	-	-	-	-	-	-	-	1	-	-	-	-	2	-
Genetics(29)	6	5	3	1	2	1	1	-	-	-	-	-	-	-	-
Human/animal pathology(30) .	-	-	-	-	-	-	-	-	-	1	2	1	1	2	-
Plant pathology(30)	-	-	-	-	-	-	-	-	-	2	-	2	-	1	-
Pathology(30)	2	3	1	-	-	1	1	-	-	-	-	-	-	-	-
Human/animal pharmacol	1	-	-	-	1	-	-	-	2	2	1	1	2	1	1
Human/animal physiol(31) ...	-	-	-	-	-	-	-	-	2	2	1	1	2	-	3
Animal physiology(31)	3	2	1	4	1	1	-	2	-	-	-	-	-	-	-
Plant physiology(31)	1	2	2	-	-	-	-	1	1	1	-	3	1	-	-
Immunology	1	-	-	-	-	1	-	-	1	-	1	-	-	-	1
Microbiology(32)	-	-	-	-	-	-	-	-	2	1	3	4	5	2	2
Microbiology/bacteriol(32) .	10	7	2	2	2	1	-	1	-	-	-	-	-	-	-
Molecular biology	4	1	-	-	-	-	-	-	-	1	1	2	3	3	5
Neurosciences	-	-	-	-	-	-	-	-	-	-	1	-	-	2	2
Nutritional sciences(33) ...	-	3	3	2	1	-	2	3	1	4	-	2	-	4	-
Parasitology	-	-	-	-	2	-	-	-	-	-	-	1	-	-	2
Toxicology(2)	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Zoology, other(34)	-	-	-	-	-	-	-	-	-	1	-	-	-	1	1
Zoology(34)	3	4	4	-	-	-	1	-	-	-	-	-	-	-	-
Biological sci, general	2	4	2	-	3	-	1	-	1	4	2	1	4	4	-
Biological sci, other	1	1	2	1	-	-	-	1	-	1	-	-	1	-	-

See footnotes at end of table.

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Table 3. Race and citizenship status of science and engineering doctorates by subfield: 1975-89--continued

	Year of doctorate														
Field of study	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
NON-U.S. CITIZENS, TEMPORARY RESIDENTS OTHER/UNKNOWN RACE															
SOCIAL SCIENCES	106	137	71	34	32	36	28	52	39	62	64	82	68	48	55
Agricultural economics	16	8	5	3	3	4	3	3	3	8	-	9	6	4	4
Anthropology	3	9	6	3	-	1	3	1	1	3	3	-	5	4	2
Area studies	1	-	-	1	-	-	1	-	1	1	-	2	-	-	-
Criminology(35)	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-
Demography(2)	-	-	-	-	-	-	-	-	1	1	2	1	2	1	3
Econometrics	1	2	-	-	-	1	-	-	-	1	1	-	2	2	-
Economics	36	46	24	10	15	10	5	17	12	16	20	25	15	18	15
Geography	4	2	3	2	1	2	-	3	2	2	4	6	1	4	2
History of science(36)	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
International relations	2	7	4	1	4	1	1	4	3	2	2	3	2	3	7
Linguistics	5	9	4	1	-	2	3	7	3	7	4	10	8	6	1
Pol sci/government(37)	-	-	-	-	-	-	-	-	7	4	9	9	9	4	2
Political science(37)	-	21	5	4	5	8	4	4	-	-	-	-	-	-	-
Pol sci, public admin(37)	15	2	-	-	-	-	-	-	-	-	-	-	-	-	-
Public policy studies(2)	-	-	-	-	-	-	-	-	2	-	1	1	2	-	2
Sociology	16	22	13	7	4	3	4	6	4	10	7	7	9	-	9
Statistics	3	3	2	-	-	-	1	2	-	2	3	2	5	1	3
Urban studies(38)	3	-	2	1	-	1	2	1	-	2	4	2	2	1	2
Social sciences, general	-	1	-	-	-	-	-	-	-	2	1	-	-	-	-
Social sciences, other	1	4	3	1	-	3	1	4	-	1	1	5	-	-	3
PSYCHOLOGY	13	12	4	5	8	4	7	6	-	2	8	5	6	9	2
Clinical	2	1	-	-	-	-	1	-	-	-	1	-	-	1	-
Cognitive(2)	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-
Counseling(40)	1	1	-	-	-	-	1	-	-	-	1	1	-	-	-
Developmental(41)	5	2	1	-	-	2	-	-	-	-	1	-	1	2	-
Educational	-	-	1	1	2	-	1	-	-	1	-	-	-	-	-
Experimental(39)	2	3	-	-	1	-	-	2	-	1	2	1	1	-	1
Indust/organizational(42)	1	3	-	-	-	-	-	1	-	-	-	-	-	2	-
Physiological(39)	1	-	-	1	1	-	1	1	-	-	-	-	1	-	-
Psychometrics	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
School	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-
Social	1	1	-	-	-	-	-	1	-	-	-	-	-	-	1
Psychology, general	-	1	1	2	1	-	1	-	-	-	-	1	1	1	-
Psychology, other	-	-	-	1	3	2	2	1	-	-	3	1	1	1	-
TOTAL, ENGINEERING	202	198	93	27	37	31	30	52	58	76	105	101	104	89	94
Aeronaut/astronautical(43)	9	6	9	1	3	-	-	2	5	2	3	6	3	-	3
Agricultural	7	3	4	2	1	2	1	2	3	6	2	1	2	3	4
Bioengineering/biomed(44)	1	1	2	-	1	-	-	-	1	2	-	1	1	1	2
Ceramic	-	1	2	-	-	-	-	-	-	-	-	-	1	-	-
Chemical	32	24	8	1	3	2	3	4	7	9	12	19	7	14	15
Civil	26	29	17	4	4	8	4	13	14	10	23	14	14	8	13
Communications(2)	-	-	-	-	-	-	-	-	1	-	-	1	-	1	-
Computer	9	11	1	1	1	-	2	-	2	1	1	4	2	1	2
Electrical/electronics(45)	-	-	-	-	-	-	-	-	4	15	17	16	20	19	21
Electrical(45)	31	31	14	3	5	4	6	5	2	-	-	-	-	-	-
Electronics(45)	7	-	-	-	1	-	-	1	-	-	-	-	-	-	-
Engineering mechanics	10	9	2	-	-	1	1	1	-	1	-	3	4	1	2
Engineering physics(46)	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Engineering science(2)	-	-	-	-	-	-	-	-	2	1	1	1	-	-	-
Environmental health eng(47)	2	4	1	1	-	1	-	1	-	1	-	-	-	-	-
Fuel tech/petro eng(8)	2	2	1	-	1	-	-	-	-	-	-	-	-	-	-
Industrial	6	8	4	-	2	2	1	1	2	1	1	4	2	3	4
Materials science	9	11	5	1	2	-	-	3	1	5	2	4	4	8	4
Mechanical	21	28	9	2	1	4	3	11	4	6	15	12	17	9	13
Metallurgical(48)	7	9	1	3	4	-	2	2	2	1	2	3	5	2	2
Mining/mineral(49)	-	3	-	-	-	-	-	-	1	-	-	1	-	3	1
Naval arch/marine engin(2)	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-
Nuclear(46)	2	8	3	2	-	1	4	2	3	4	8	2	4	2	3
Ocean(2)	-	-	-	-	-	-	-	-	-	-	5	1	1	2	-
Operations research	6	2	1	2	2	-	2	1	1	-	3	-	-	4	1
Petroleum(50)	-	1	1	1	3	3	-	1	1	3	2	1	1	-	1
Polymer(2)	-	-	-	-	-	-	-	-	2	-	-	1	1	1	1
Systems(51)	5	1	2	-	2	-	1	2	-	-	1	2	4	1	-
Engineering, general	5	2	3	1	-	2	-	-	-	2	3	2	4	1	1
Engineering, other	5	4	3	2	1	1	-	-	-	5	3	2	6	5	1
TOTAL, NON-SCI/ENGINEERING(52)	126	171	83	52	47	52	55	75	71	83	92	114	111	73	83
TOTAL, ALL FIELDS	743	762	397	178	190	182	183	250	249	323	380	439	469	356	360

NOTE: This table excludes doctorates whose citizenship status was unknown; the numbers of those excluded are shown in the last section of Table 2.

See footnotes at end of table.

SOURCE: Survey of Earned Doctorates

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FOOTNOTES

NOTE: A hyphen (-) in a data column signifies that the subfield was not identified separately in the questionnaire for that year (e.g., the subfield "Polymer chemistry" was introduced in 1973), or that this subfield was included in the questionnaire for that year but no doctorates were reported.

(1) "Astronomy/astrophysics" were combined until 1969 when separate subfields were introduced.

(2) This subfield was introduced in 1983.

(3) This subfield was originally called "Electricity and magnetism." In 1966 the name was changed to "Electromagnetism." In 1980 this subfield was deleted from the taxonomy.

(4) "Thermal physics" was originally shown as one subfield, "Mechanics and heat." In 1960 this subfield was separated into "Mechanics" and "Heat (Thermal)." The latter was subsequently changed to "Thermal phenomena" in 1963 and then to "Thermal physics" in 1967. "Mechanics" was deleted from the taxonomy in 1977.

(5) This subfield was originally named "Nuclear structure." It was changed to "Nuclear" in 1983.

(6) This subfield was deleted in 1962, but some degrees were reported for 1962 and 1963 because outdated forms were used by some institutions.

(7) This subfield was added in 1960 under the original name of "Heat (Thermal)." It was deleted in 1982. See footnote 4 for more information.

(8) In 1960 "Geophysical engineering" and Geological engineering" were merged into "Geo-engineering." "Geo-engineering" became "Applied geology, geological engineering, economic geology, and petroleum engineering" in 1962, and was split into "Applied geology, geological engineering, and economic geology" and "Fuel technology and petroleum engineering" in 1969. "Fuel technology and petroleum engineering" was discontinued in this major group, and in 1983 "Applied geology, geological engineering, and economic geology" was replaced by "Applied geology" (also see footnote 50).

(9) "Environmental sciences, general" and "Environmental sciences, other" were deleted in 1983, and "Environmental sciences" was introduced.

(10) "Mineralogy, petrology, and geochemistry" was split into "Geochemistry" and "Mineralogy, petrology" in 1969.

(11) "Structural geology" was deleted in 1983, and "Geology" was introduced.

(12) "Geophysics" was replaced by "Geophysics, solid earth" in 1976. It was changed to "Geophysics and seismology" in 1983.

(13) This subfield was originally listed as "Hydrology." "Water resources" was added to the title in 1977.

(14) This subfield was introduced in 1977 and deleted in 1983.

(15) This subfield was deleted in 1976 and restored in 1983.

(16) "Earth science, general" and "Earth science, other" were deleted in 1983, and "Geological sciences, general" and "Geological sciences, other" were introduced.

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(17) This subfield was specified as "Analysis" through 1967. "Functional analysis" was added in 1968.

(18) "Math statistics" was removed from the name of this subfield in 1969, but was restored in 1972.

(19) This subfield was introduced in 1988.

(20) This subfield was previously called "Animal husbandry." It was changed in 1983.

(21) The "Animal sciences" subfield was introduced in 1972. The name was changed to "Animal science and animal nutrition" in 1977. The field was separated into "Animal nutrition" and "Animal sciences, other" in 1983. In 1988 "Dairy science" and "Poultry science" were introduced.

(22) "Fish and wildlife" was split into two separate subfields in 1983. In 1988 "Wildlife management" was discontinued, and "Wildlife/range management" was introduced.

(23) This subfield was introduced as "Food science and technology" in 1969. The name was changed to "Food sciences" in 1983. In 1988 the field was separated into "Food distribution," "Food engineering," and "Food sciences, other."

(24) In 1988 "Forestry science" was separated into "Forestry biology," "Forest engineering," "Forest management," "Wood science," "Renewable natural resources," and "Forestry and related sciences, other."

(25) "Phytopathology" was discontinued in 1983 and subfields "Plant breeding and genetics," "Plant pathology," and "Plant sciences, other" were introduced. In 1988 "Plant protection-pest management" was introduced.

(26) This subfield was changed from "Soils and soil science" to "Soil sciences" in 1983. In 1988 "Soil sciences" was separated into "Soil chemistry/microbiology" and "Soil sciences, other."

(27) The subfield "Botany" was discontinued in 1983, and "Botany, other" was introduced.

(28) "Cytology" was introduced in 1962 and discontinued in 1983. "Cell biology" was introduced in 1983.

(29) "Genetics" was split into "Plant genetics" and "Human and animal genetics" in 1983.

(30) "Pathology" was split into "Plant pathology" and "Human and animal pathology" in 1983.

(31) In 1962 "Animal and plant physiology" was separated into "Animal physiology" and "Plant physiology." In 1983 "Animal physiology" was replaced by "Human and animal physiology."

(32) This subfield was originally called "Microbiology." "Bacteriology" was added in 1970. In 1983, they were split into two separate subfields.

(33) The subfield "Nutrition" was discontinued in 1963. "Nutrition and dietetics" was introduced in 1976 and was replaced by "Nutritional sciences" in 1983.

(34) The subfield "Zoology" was discontinued in 1983, and "Zoology, other" was introduced.

(35) This subfield was introduced in 1980 as "Criminology and criminal justice." The name was changed to "Criminology" in 1983.

(36) The subfield "History and philosophy of science" was introduced in 1971. The name was changed to "History of science" in 1983.

(37) "Political science, public administration" was split into two separate subfields in 1976. "Public administration" was not included in science or engineering fields after 1976. In 1983, "Political science and government" replaced "Political science."

(38) This subfield was changed from "Urban and regional planning" to "Urban studies" in 1983.

(39) "Experimental, comparative, and physiological psychology" was split into three separate subfields in 1962.

(40) This subfield was changed from "Counseling and guidance" to "Counseling" in 1983.

(41) This subfield was changed from "Developmental and gerontological" to "Developmental" in 1983.

(42) This subfield was changed from "Industrial and personnel" to "Industrial and organizational" in 1983.

(43) This subfield was originally named "Aeronautical engineering." In 1966 the term "Astronautical" was added, and in 1983 the term "Aerospace" was added.

(44) "Biomedical" was introduced in 1969, and "Bioengineering" was added in 1983.

(45) These two subfields were merged in 1983.

(46) In 1961 "Nuclear engineering" was deleted from the taxonomy, and previous cases were added to "Engineering physics." In 1969 "Nuclear engineering" was reinstated in the taxonomy.

(47) This subfield was called "Sanitary and environmental" prior to 1983.

(48) This subfield was originally specified as "Metallurgy and metallurgical engineering." The term "Physical" was introduced in 1967. It was changed to "Metallurgical" in 1983.

(49) "Mining engineering" was deleted in 1961 but was restored to the taxonomy in 1969. The name was changed to "Mining and mineral" in 1983.

(50) The subfield "Fuel technology and petroleum engineering" was added to the Engineering section of the taxonomy in 1973. The name was changed to "Petroleum" in 1983 (also see footnote 8).

(51) This subfield was introduced as "Systems design and systems science" in 1975. It was changed to "Systems" in 1983.

(52) Non-science/engineering doctorates in this table include doctorates whose field of specialization is unclassified.

Table 4. Median age of science and engineering doctorates by major field and sex: 1960-89

	Median age in year of doctorate													
Field of study	1960-1964	1965-1969	1960-1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1970-1979
TOTAL, MALE AND FEMALE														
Total, sci/eng	30.2	29.5	29.8	29.2	29.3	29.6	29.9	30.0	29.9	29.9	30.0	30.1	30.2	29.8
Total, sciences	30.3	29.4	29.8	29.1	29.2	29.5	29.9	29.9	29.8	29.9	30.0	30.1	30.2	29.8
Physical sciences ..	28.5	28.1	28.3	28.2	28.3	28.6	28.9	28.8	28.7	28.8	29.0	29.0	28.6	28.6
Physics/astronomy.	29.0	28.5	28.7	28.6	28.8	29.0	29.2	29.3	29.3	29.1	29.5	29.5	29.2	29.1
Chemistry	28.2	27.7	27.9	27.9	27.9	28.3	28.5	28.5	28.3	28.5	28.6	28.7	28.2	28.3
Earth/atmos/mar sci.	30.6	30.4	30.5	30.5	30.5	30.5	30.5	31.0	30.7	30.2	30.5	30.5	30.2	30.5
Mathematics	29.3	28.1	28.4	28.1	28.4	28.9	29.1	29.2	29.1	29.1	29.0	29.3	29.3	28.9
Computer/info sci ..	*	*	*	*	*	*	*	*	*	*	29.5	30.1	30.1	30.1
Agric & biol sci ...	30.8	30.1	30.4	29.2	29.4	29.7	30.0	29.9	29.7	29.7	29.7	29.8	29.8	29.7
Agricultural sci .	31.2	31.4	31.3	30.2	30.8	31.1	31.2	31.2	31.0	31.4	31.2	31.2	31.2	31.1
Biological sci ...	30.7	29.7	30.1	29.0	29.1	29.4	29.7	29.6	29.4	29.4	29.4	29.5	29.5	29.4
Social sciences	32.9	31.9	32.3	31.2	31.0	30.9	31.2	31.5	31.6	31.6	31.9	31.7	32.3	31.5
Psychology	31.1	29.8	30.4	29.0	28.9	29.3	29.5	29.4	29.5	29.6	29.9	30.1	30.6	29.6
Total, engineering(1) .	29.8	29.7	29.8	29.6	29.9	30.1	30.4	30.3	30.2	30.2	30.0	30.2	30.3	30.1
Chemical	28.5	28.3	28.4	28.6	28.5	28.6	29.1	29.0	29.2	29.1	29.1	29.2	28.4	28.9
Civil	30.8	31.0	30.9	30.3	31.0	30.7	31.5	31.3	31.5	31.9	31.3	30.9	31.4	31.2
Electrical	29.9	29.7	29.8	29.2	29.5	29.9	30.2	30.1	29.8	30.0	29.9	29.7	30.3	29.8
Materials sci	*	29.8	29.8	29.3	30.5	30.2	29.5	30.5	30.1	29.7	29.4	29.5	30.7	29.9
Mechanical	30.2	30.1	30.1	30.3	30.3	30.6	30.7	30.8	30.4	30.6	30.7	30.8	30.4	30.6
Total, non-sci/eng(2) .	35.5	35.4	35.4	34.7	34.6	34.4	34.2	34.1	34.3	34.4	34.6	34.8	35.0	34.5
Total, all fields	31.7	31.2	31.4	30.7	30.8	31.1	31.3	31.4	31.5	31.6	31.6	31.7	31.9	31.4
MALE														
Total, sci/eng	30.1	29.5	29.7	29.1	29.3	29.7	30.0	30.1	29.9	29.9	30.0	30.1	30.2	29.8
Total, sciences	30.2	29.4	29.7	29.0	29.2	29.6	29.9	30.0	29.9	29.8	30.0	30.1	30.1	29.7
Physical sciences ..	28.5	28.1	28.3	28.2	28.3	28.6	28.9	28.9	28.7	28.8	29.0	29.1	28.6	28.7
Physics/astronomy.	29.0	28.5	28.7	28.6	28.8	29.0	29.2	29.3	29.4	29.2	29.5	29.6	29.2	29.1
Chemistry	28.2	27.7	27.9	27.8	27.9	28.3	28.5	28.5	28.3	28.6	28.6	28.8	28.2	28.3
Earth/atmos/mar sci.	30.6	30.5	30.5	30.5	30.5	30.6	30.6	30.9	30.7	30.2	30.6	30.5	30.3	30.5
Mathematics	29.2	28.0	28.4	28.1	28.4	28.9	29.1	29.2	29.1	29.1	29.0	29.3	29.4	28.9
Computer/info sci ..	*	*	*	*	*	*	*	*	*	*	29.7	30.1	30.0	30.0
Agric & biol sci ...	30.8	30.2	30.4	29.3	29.4	29.8	30.1	30.1	29.9	29.9	29.9	29.8	29.9	29.8
Agricultural sci .	31.2	31.5	31.4	30.2	30.8	31.1	31.3	31.2	31.0	31.5	31.2	31.2	31.4	31.1
Biological sci ...	30.6	29.8	30.1	29.1	29.1	29.5	29.8	29.7	29.6	29.5	29.5	29.4	29.5	29.5
Social sciences	32.7	31.8	32.1	31.1	30.9	30.8	31.2	31.5	31.6	31.6	31.9	31.6	32.1	31.4
Psychology	30.8	29.5	30.1	28.8	28.7	29.1	29.3	29.4	29.5	29.5	29.9	30.1	30.5	29.5
Total, engineering(1) .	29.8	29.7	29.8	29.6	29.9	30.1	30.4	30.3	30.2	30.2	30.0	30.2	30.4	30.1
Chemical	28.5	28.3	28.4	28.6	28.5	28.6	29.1	29.0	29.2	29.1	29.1	29.2	28.4	28.9
Civil	30.8	31.0	30.9	30.3	31.0	30.7	31.6	31.3	31.6	31.9	31.4	30.9	31.4	31.2
Electrical	29.9	29.7	29.8	29.2	29.5	29.9	30.2	30.1	29.8	30.1	29.9	29.8	30.4	29.9
Materials sci	*	29.8	29.8	29.3	30.5	30.2	29.5	30.5	30.1	29.7	29.4	29.6	30.7	29.9
Mechanical	30.2	30.1	30.1	30.3	30.3	30.6	30.8	30.8	30.5	30.5	30.7	30.8	30.4	30.6
Total, non-sci/eng(2) .	34.9	34.9	34.9	34.3	34.1	33.9	33.9	33.8	34.0	34.2	34.3	34.5	34.7	34.2
Total, all fields	31.5	30.9	31.1	30.5	30.5	30.9	31.1	31.3	31.3	31.3	31.3	31.3	31.6	31.1
FEMALE														
Total, sci/eng	31.8	30.1	30.6	29.3	29.7	29.5	29.8	29.7	29.6	29.9	29.9	30.2	30.4	29.9
Total, sciences	31.9	30.1	30.6	29.3	29.7	29.5	29.8	29.7	29.6	29.9	29.9	30.2	30.5	29.9
Physical sciences ..	28.5	28.1	28.2	28.6	28.1	28.4	28.6	28.5	28.3	28.2	28.4	28.3	28.5	28.4
Physics/astronomy.	30.5	28.3	28.6	28.9	28.9	28.4	29.1	29.8	28.6	28.0	29.1	29.2	29.2	28.9
Chemistry	28.3	28.0	28.1	28.5	28.0	28.4	28.4	28.2	28.1	28.3	28.2	28.2	28.2	28.2
Earth/atmos/mar sci.	*	30.1	31.0	*	*	29.8	28.8	31.3	29.8	30.5	29.2	30.3	29.1	29.8
Mathematics	29.8	28.7	28.9	27.9	28.2	28.6	28.7	28.8	29.2	29.1	29.0	29.3	29.1	28.9
Computer/info sci ..	*	*	*	*	*	*	*	*	*	*	*	*	30.7	30.7
Agric & biol sci ...	31.2	29.3	29.8	28.5	29.2	29.0	29.3	29.1	29.0	29.2	29.3	29.7	29.4	29.2
Agricultural sci .	32.8	30.0	30.5	30.3	30.8	30.8	29.7	31.0	30.4	30.5	30.0	31.4	28.6	30.2
Biological sci ...	31.1	29.3	29.8	28.5	29.2	28.9	29.3	29.0	28.9	29.1	29.2	29.6	29.5	29.2
Social sciences	35.5	34.0	34.4	31.7	32.2	31.3	31.4	31.1	31.4	31.6	32.1	32.1	32.9	31.8
Psychology	33.1	31.3	32.0	29.6	29.9	29.9	30.0	29.6	29.6	29.9	30.0	29.9	30.8	30.0
Total, engineering(1) .	30.8	30.2	30.4	*	*	29.3	29.0	29.0	29.2	29.7	28.2	29.7	29.3	29.2
Chemical	*	*	*	*	*	*	*	*	*	*	*	*	*	28.7
Civil	*	*	*	*	*	*	*	*	*	*	*	*	*	29.7
Electrical	*	*	*	*	*	*	*	*	*	*	*	*	*	28.2
Materials sci	*	*	*	*	*	*	*	*	*	*	*	*	*	30.0
Mechanical	*	*	*	*	*	*	*	*	*	*	*	*	*	29.4
Total, non-sci/eng(2) .	39.6	38.1	38.6	37.2	37.0	36.4	35.3	35.0	35.3	35.0	35.3	35.4	35.5	35.6
Total, all fields	36.1	34.3	35.0	33.1	33.0	32.9	32.6	32.3	32.5	32.6	32.8	32.9	33.1	32.8

See footnotes at end of table.

Table 4. Median age of science and engineering doctorates by major field and sex: 1960-89--continued

Field of study	Median age in year of doctorate											
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1980-1989	1960-1989
TOTAL, MALE AND FEMALE												
Total, sci/eng	30.2	30.4	30.5	30.8	31.0	31.2	31.4	31.5	31.7	31.7	31.1	30.3
Total, sciences	30.2	30.3	30.5	30.8	31.1	31.3	31.5	31.6	31.8	31.8	31.1	30.3
Physical sciences ..	28.7	28.6	28.8	29.0	29.1	29.2	29.5	29.4	29.6	29.5	29.2	28.7
Physics/astronomy.	29.4	29.1	29.6	29.5	29.5	29.8	30.0	30.0	30.0	30.0	29.7	29.2
Chemistry	28.3	28.3	28.3	28.6	28.7	28.9	29.2	29.1	29.4	29.1	28.8	28.4
Earth/atmos/mar sci.	30.8	30.9	30.7	31.0	31.6	31.3	31.8	31.9	32.4	32.2	31.5	30.9
Mathematics	29.3	29.2	29.4	29.6	30.2	30.4	30.0	30.7	30.9	30.7	30.0	29.1
Computer/info sci ..	29.5	30.1	29.9	30.9	31.2	31.1	32.0	31.8	32.3	32.0	31.2	31.1
Agric & biol sci ...	29.7	29.8	29.9	30.2	30.6	30.9	31.1	31.2	31.4	31.6	30.6	30.2
Agricultural sci .	31.3	31.5	31.2	31.6	31.7	32.1	32.4	32.8	33.2	33.3	32.1	31.5
Biological sci ...	29.4	29.4	29.7	29.9	30.4	30.5	30.8	30.8	31.0	31.2	30.3	29.9
Social sciences	32.3	32.5	32.9	33.1	33.3	33.8	33.7	34.0	34.5	34.1	33.4	32.3
Psychology	30.6	31.4	31.5	32.0	32.3	32.5	33.0	33.2	33.7	33.7	32.3	30.9
Total, engineering(1) .	30.3	30.5	30.7	30.8	30.7	30.9	31.0	31.0	31.1	31.1	30.8	30.3
Chemical	29.0	29.2	29.3	29.3	29.2	29.3	29.3	29.2	29.3	29.4	29.2	28.9
Civil	31.9	31.4	31.4	31.4	31.4	31.6	32.0	32.2	32.1	32.2	31.8	31.4
Electrical	29.8	30.1	30.3	30.3	30.5	30.6	30.6	30.4	30.7	30.7	30.4	30.0
Materials sci	29.2	29.9	30.2	30.8	30.4	30.0	31.1	31.0	30.8	31.1	30.5	30.3
Mechanical	30.8	30.6	30.9	31.2	30.8	30.9	31.1	31.1	31.5	31.6	31.1	30.7
Total, non-sci/eng(2) .	35.4	35.6	35.8	36.2	36.7	37.1	37.5	37.7	38.2	38.6	36.9	35.7
Total, all fields	32.2	32.4	32.5	32.8	33.0	33.3	33.5	33.6	33.8	33.8	33.1	32.0
MALE												
Total, sci/eng	30.2	30.3	30.5	30.7	30.9	31.1	31.3	31.4	31.5	31.5	30.9	30.2
Total, sciences	30.2	30.2	30.4	30.6	30.9	31.1	31.4	31.5	31.7	31.7	30.9	30.1
Physical sciences ..	28.8	28.6	28.8	29.0	29.1	29.3	29.5	29.5	29.7	29.6	29.2	28.7
Physics/astronomy.	29.5	29.1	29.6	29.5	29.5	29.8	30.0	30.0	30.0	30.0	29.7	29.2
Chemistry	28.4	28.3	28.3	28.6	28.8	28.9	29.2	29.2	29.5	29.3	28.8	28.4
Earth/atmos/mar sci.	30.9	31.1	30.9	31.2	31.8	31.5	31.8	32.1	32.5	32.3	31.6	30.9
Mathematics	29.2	29.1	29.4	29.6	30.3	30.5	29.9	30.6	30.9	30.7	30.0	29.1
Computer/info sci ..	29.5	30.1	29.8	30.8	31.0	30.9	31.9	31.7	32.0	31.5	31.1	30.9
Agric & biol sci ...	29.8	29.8	30.1	30.3	30.7	30.9	31.2	31.4	31.7	31.8	30.7	30.3
Agricultural sci .	31.5	31.7	31.4	31.7	32.0	32.2	32.8	33.0	33.5	33.6	32.3	31.6
Biological sci ...	29.4	29.4	29.8	29.9	30.4	30.5	30.8	30.9	31.2	31.3	30.3	29.9
Social sciences	32.2	32.4	32.8	32.9	33.1	33.4	33.5	33.8	34.1	33.7	33.1	32.1
Psychology	30.4	31.2	31.2	31.8	32.1	32.4	32.7	33.1	33.4	33.5	32.0	30.5
Total, engineering(1) .	30.3	30.6	30.8	30.8	30.8	31.0	31.0	31.1	31.2	31.3	30.9	30.3
Chemical	29.0	29.3	29.4	29.3	29.2	29.4	29.3	29.2	29.4	29.5	29.3	28.9
Civil	31.9	31.4	31.4	31.5	31.5	31.7	32.1	32.2	32.1	32.1	31.8	31.4
Electrical	29.8	30.1	30.4	30.3	30.5	30.7	30.6	30.4	30.8	30.8	30.5	30.1
Materials sci	29.2	30.1	30.5	30.8	30.7	30.0	31.1	31.3	31.0	31.2	30.6	30.3
Mechanical	30.8	30.6	30.9	31.2	30.8	30.9	31.2	31.1	31.6	31.7	31.1	30.7
Total, non-sci/eng(2) .	35.0	35.1	35.4	35.8	36.2	36.6	36.8	36.9	37.3	37.4	36.2	35.0
Total, all fields	31.7	31.8	32.0	32.1	32.3	32.6	32.7	32.8	33.0	33.0	32.4	31.5
FEMALE												
Total, sci/eng	30.4	30.7	30.8	31.3	31.5	31.6	31.9	31.8	32.0	32.0	31.5	30.8
Total, sciences	30.5	30.8	30.9	31.3	31.5	31.7	32.0	31.9	32.2	32.2	31.6	30.9
Physical sciences ..	28.2	28.6	28.5	28.8	28.5	28.9	29.2	29.0	29.2	28.9	28.8	28.6
Physics/astronomy.	29.1	29.6	29.8	29.3	30.4	30.1	29.6	30.3	30.0	29.8	29.8	29.4
Chemistry	27.9	28.3	28.3	28.6	28.3	28.5	29.1	28.6	29.0	28.7	28.5	28.4
Earth/atmos/mar sci.	30.5	29.9	29.8	30.0	31.0	31.0	31.9	30.7	32.0	31.8	31.0	30.7
Mathematics	30.2	29.5	29.7	29.6	30.0	30.2	30.5	31.3	31.0	30.7	30.2	29.5
Computer/info sci ..	30.0	30.2	32.0	32.3	33.7	33.5	32.5	31.9	33.6	34.9	32.9	32.5
Agric & biol sci ...	29.5	29.6	29.6	30.1	30.2	30.8	30.9	30.7	30.9	31.2	30.4	30.0
Agricultural sci .	29.8	30.4	29.7	31.5	29.9	31.5	30.9	31.4	32.1	32.3	31.1	30.9
Biological sci ...	29.4	29.5	29.5	30.0	30.3	30.7	30.8	30.6	30.8	31.1	30.3	29.9
Social sciences	32.5	32.9	33.2	33.6	33.5	34.7	34.2	34.5	35.5	35.2	34.0	33.2
Psychology	30.9	31.7	31.9	32.4	32.7	32.7	33.4	33.3	34.2	33.9	32.7	31.7
Total, engineering(1) .	28.9	29.0	29.5	30.0	29.8	29.4	30.3	29.8	29.5	29.9	29.6	29.6
Chemical	*	*	*	28.8	28.8	28.5	29.2	29.0	28.2	28.3	28.6	28.6
Civil	*	*	*	*	*	*	*	*	31.0	33.5	31.2	30.9
Electrical	*	*	*	*	*	29.2	30.5	29.2	29.0	29.2	29.3	29.1
Materials sci	*	*	*	*	*	29.9	*	29.8	29.0	30.4	29.4	29.5
Mechanical	*	*	*	*	*	28.9	*	*	31.0	30.7	30.0	29.9
Total, non-sci/eng(2) .	36.1	36.5	36.5	36.8	37.5	37.9	38.5	38.8	39.3	39.9	37.8	37.2
Total, all fields	33.5	33.8	34.0	34.4	34.8	35.1	35.4	35.4	35.8	36.0	34.8	34.1

NOTE: See Technical Notes for calculation method of median age.

* Asterisks indicate too few cases (under 20) present within a cell to compute a median.
(1) Subtotal includes engineering fields not separately shown.
(2) Non-science/engineering doctorates in this table include doctorates whose field of specialization is unclassified.

SOURCE: Survey of Earned Doctorates

Table 5. Median lapsed time between receipt of baccalaureate and science and engineering doctoral degrees by field: 1960-89

Field of study	1960-1964	1965-1969	1960-1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1970-1979
	Year of doctorate													
TOTAL, MALE AND FEMALE														
Total, sci/eng	7.3	6.8	7.0	6.6	6.8	7.0	7.2	7.3	7.3	7.3	7.4	7.5	7.5	7.2
Total, sciences	7.4	6.7	7.0	6.5	6.7	7.0	7.2	7.2	7.2	7.3	7.4	7.5	7.5	7.1
Physical sciences ..	6.2	5.9	6.0	6.0	6.1	6.3	6.5	6.5	6.5	6.5	6.7	6.7	6.4	6.4
Physics/astronomy.	6.8	6.4	6.5	6.5	6.7	6.8	7.0	7.2	7.2	7.0	7.3	7.3	7.0	6.9
Chemistry	5.8	5.5	5.6	5.6	5.7	5.9	6.1	6.0	6.1	6.2	6.3	6.3	6.0	6.0
Earth/atmos/mar sci.	7.8	7.6	7.6	7.7	7.7	7.9	7.8	8.1	7.9	7.7	8.0	7.9	7.6	7.8
Mathematics	6.9	6.0	6.2	6.0	6.3	6.7	6.8	7.0	6.9	6.9	6.9	7.1	7.1	6.7
Computer/info sci ..	*	*	*	*	*	*	*	*	*	*	7.7	7.8	7.5	7.7
Agric & biol sci ...	7.6	7.1	7.3	6.5	6.6	6.9	7.0	7.0	7.0	7.1	7.1	7.2	7.2	7.0
Agricultural sci .	7.7	7.9	7.8	7.2	7.7	7.7	7.9	7.9	8.0	8.2	8.0	7.9	7.9	7.8
Biological sci ...	7.6	6.9	7.1	6.4	6.5	6.7	6.9	6.9	6.8	6.9	7.0	7.0	7.0	6.8
Social sciences	9.4	8.4	8.8	8.1	8.1	8.1	8.3	8.5	8.6	8.6	8.9	8.9	9.3	8.5
Psychology	7.3	6.8	7.2	6.4	6.3	6.6	6.7	6.8	6.8	6.9	7.2	7.4	7.7	6.9
Total, engineering(1) .	7.0	7.1	7.1	6.9	7.2	7.5	7.7	7.6	7.5	7.5	7.5	7.5	7.6	7.4
Chemical	6.2	5.9	6.0	6.3	6.2	6.3	6.5	6.5	6.8	6.5	6.6	6.6	5.9	6.4
Civil	7.8	8.0	7.9	7.2	7.9	7.8	8.7	8.8	8.6	8.8	8.4	7.9	8.3	8.2
Electrical	6.9	7.0	7.0	6.7	6.9	7.3	7.5	7.4	7.2	7.3	7.3	7.0	7.6	7.2
Materials sci	*	7.8	7.8	6.6	7.8	7.8	7.1	7.5	7.6	7.3	6.9	7.0	7.8	7.3
Mechanical	7.3	7.3	7.3	7.3	7.5	7.8	8.0	7.9	7.8	7.9	7.9	8.1	7.5	7.8
Total, non-sci/eng(2) .	11.6	11.6	11.6	10.9	10.9	10.7	10.7	10.6	10.9	11.1	11.2	11.4	11.5	11.0
Total, all fields	8.7	8.1	8.3	7.9	7.9	8.2	8.4	8.5	8.6	8.6	8.7	8.9	9.0	8.5
MALE														
Total, sci/eng	7.2	6.8	6.9	6.5	6.7	7.0	7.2	7.3	7.3	7.3	7.4	7.4	7.4	7.1
Total, sciences	7.3	6.7	6.9	6.5	6.6	6.9	7.1	7.2	7.2	7.2	7.4	7.4	7.4	7.1
Physical sciences ..	6.2	5.9	6.0	6.0	6.1	6.3	6.5	6.5	6.5	6.5	6.8	6.8	6.3	6.4
Physics/astronomy.	6.8	6.4	6.5	6.5	6.6	6.8	7.0	7.1	7.2	7.0	7.3	7.3	7.0	6.9
Chemistry	5.8	5.4	5.5	5.6	5.6	5.9	6.1	6.0	6.1	6.2	6.3	6.4	5.9	6.0
Earth/atmos/mar sci.	7.7	7.6	7.6	7.7	7.7	8.0	7.8	8.0	7.9	7.7	8.1	7.9	7.6	7.9
Mathematics	6.8	5.9	6.1	6.0	6.3	6.7	6.9	7.0	6.9	6.9	6.8	7.1	7.0	6.7
Computer/info sci ..	*	*	*	*	*	*	*	*	*	*	7.6	7.9	7.3	7.5
Agric & biol sci ...	7.6	7.1	7.3	6.5	6.6	6.9	7.0	7.1	7.1	7.1	7.1	7.1	7.2	7.0
Agricultural sci .	7.7	7.9	7.8	7.2	7.6	7.6	7.9	7.8	8.0	8.2	8.0	7.9	8.1	7.8
Biological sci ...	7.5	6.8	7.1	6.4	6.4	6.7	6.8	6.9	6.8	6.9	6.9	6.9	7.0	6.8
Social sciences	9.3	8.3	8.7	8.1	8.0	8.0	8.3	8.4	8.5	8.5	8.8	8.7	9.1	8.4
Psychology	7.5	6.5	6.9	6.2	6.1	6.3	6.5	6.6	6.7	6.8	7.1	7.3	7.5	6.7
Total, engineering(1) .	7.0	7.1	7.0	6.9	7.2	7.5	7.7	7.6	7.5	7.5	7.5	7.5	7.6	7.4
Chemical	6.2	5.9	6.0	6.3	6.2	6.3	6.5	6.5	6.8	6.4	6.7	6.6	5.9	6.4
Civil	7.8	8.0	7.9	7.3	7.9	7.9	8.8	8.8	8.6	8.8	8.4	8.0	8.3	8.3
Electrical	6.9	7.0	7.0	6.7	6.9	7.3	7.5	7.4	7.3	7.3	7.3	7.0	7.6	7.2
Materials sci	*	7.8	7.8	6.6	7.8	7.8	7.1	7.5	7.6	7.2	7.0	7.0	7.8	7.3
Mechanical	7.3	7.3	7.3	7.3	7.5	7.8	8.1	7.9	7.9	7.9	8.0	8.1	7.5	7.8
Total, non-sci/eng(2) .	11.2	11.3	11.2	10.7	10.6	10.4	10.4	10.4	10.7	10.9	10.9	11.1	11.2	10.7
Total, all fields	8.4	7.9	8.1	7.6	7.7	8.0	8.2	8.3	8.4	8.4	8.4	8.5	8.6	8.2
FEMALE														
Total, sci/eng	8.8	7.5	7.9	7.1	7.4	7.4	7.3	7.3	7.3	7.5	7.4	7.9	8.0	7.5
Total, sciences	8.8	7.5	7.9	7.1	7.4	7.4	7.4	7.3	7.3	7.5	7.5	7.9	8.0	7.5
Physical sciences ..	6.4	6.1	6.2	6.6	6.3	6.5	6.5	6.4	6.3	6.3	6.4	6.5	6.5	6.4
Physics/astronomy.	9.4	6.4	6.8	7.2	7.1	6.9	7.1	7.6	6.9	6.4	7.2	7.4	7.3	7.1
Chemistry	6.1	6.0	6.1	6.4	6.1	6.3	6.4	6.0	6.0	6.3	6.1	6.2	6.3	6.2
Earth/atmos/mar sci.	*	7.5	8.4	*	*	7.3	6.8	8.8	8.0	7.8	7.0	7.5	7.1	7.4
Mathematics	7.1	6.9	7.0	6.8	6.6	6.9	6.6	6.7	7.3	7.0	7.2	7.2	7.2	7.0
Computer/info sci ..	*	*	*	*	*	*	*	*	*	*	*	*	8.6	8.4
Agric & biol sci ...	8.5	7.1	7.5	6.5	7.0	6.8	7.1	6.8	6.7	7.0	7.1	7.4	7.2	7.0
Agricultural sci .	9.0	8.6	8.7	9.0	8.4	9.0	7.4	8.5	7.3	8.4	7.9	8.4	6.5	7.9
Biological sci ...	8.5	7.1	7.4	6.4	7.0	6.8	7.1	6.7	6.7	7.0	7.1	7.4	7.3	7.0
Social sciences	11.4	10.3	10.7	8.7	9.3	9.0	8.7	8.7	8.8	9.0	9.1	9.5	10.2	9.1
Psychology	9.5	8.1	8.6	7.3	7.3	7.4	7.2	7.1	7.1	7.1	7.2	7.6	8.0	7.4
Total, engineering(1) .	8.0	7.6	7.8	*	*	7.5	6.8	6.8	6.8	7.6	6.4	7.4	6.9	7.0
Chemical	*	*	*	*	*	*	*	*	*	*	*	*	*	6.2
Civil	*	*	*	*	*	*	*	*	*	*	*	*	*	6.7
Electrical	*	*	*	*	*	*	*	*	*	*	*	*	*	6.7
Materials sci	*	*	*	*	*	*	*	*	*	*	*	*	*	8.1
Mechanical	*	*	*	*	*	*	*	*	*	*	*	*	*	6.7
Total, non-sci/eng(2) .	14.6	13.0	13.5	12.0	11.9	11.8	11.6	11.2	11.5	11.5	11.7	11.8	11.8	11.7
Total, all fields	11.8	10.5	11.1	9.6	9.8	9.7	9.7	9.4	9.5	9.7	9.7	10.1	10.3	9.8

See footnotes at end of table.

Table 5. Median lapsed time between receipt of baccalaureate and science and engineering doctoral degrees by field: 1960-89--continued

	Year of doctorate											
Field of study	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1980-1989	1960-1989
TOTAL, MALE AND FEMALE												
Total, sci/eng	7.6	7.7	7.9	8.1	8.3	8.4	8.5	8.5	8.6	8.5	8.2	7.5
Total, sciences	7.6	7.6	7.8	8.1	8.3	8.4	8.6	8.7	8.7	8.7	8.3	7.5
Physical sciences ..	6.5	6.4	6.5	6.6	6.7	6.8	6.8	6.8	6.8	6.8	6.7	6.4
Physics/astronomy.	7.2	7.0	7.4	7.2	7.2	7.4	7.3	7.3	7.3	7.2	7.3	6.9
Chemistry	6.0	6.0	6.0	6.2	6.3	6.4	6.5	6.5	6.5	6.4	6.3	6.0
Earth/atmos/mar sci.	8.1	8.3	8.3	8.4	8.8	8.8	9.0	9.0	9.4	9.2	8.7	8.1
Mathematics	7.0	6.9	7.0	7.4	7.7	7.8	7.3	7.9	8.0	7.8	7.4	6.8
Computer/info sci ..	7.4	7.7	7.7	8.5	8.8	8.9	9.1	9.0	9.5	9.0	8.7	8.6
Agric & biol sci ...	7.1	7.1	7.3	7.6	7.9	8.0	8.3	8.3	8.4	8.5	7.9	7.4
Agricultural sci .	8.0	7.9	8.0	8.4	8.4	8.8	9.1	9.5	9.7	10.0	8.8	8.2
Biological sci ...	7.0	7.0	7.2	7.4	7.8	7.9	8.1	8.1	8.2	8.2	7.7	7.2
Social sciences	9.4	9.5	9.8	9.9	10.1	10.5	10.4	10.9	10.9	10.6	10.2	9.2
Psychology	7.9	8.4	8.6	9.0	9.3	9.4	9.7	9.9	10.1	10.1	9.2	7.9
Total, engineering(1) .	7.6	7.9	8.0	8.0	8.0	8.1	8.1	8.1	8.1	8.1	8.0	7.6
Chemical	6.5	6.6	6.9	6.7	6.7	6.8	6.8	6.7	6.8	6.7	6.7	6.4
Civil	8.4	8.4	8.5	8.5	8.5	8.7	8.7	9.2	8.9	9.2	8.7	8.4
Electrical	7.3	7.5	7.7	7.8	8.0	7.9	7.9	7.7	7.8	7.7	7.7	7.3
Materials sci	7.0	7.3	7.8	8.1	7.4	7.3	8.0	7.9	7.9	8.0	7.7	7.6
Mechanical	7.9	7.9	8.2	8.3	7.8	8.1	8.2	8.1	8.4	8.5	8.2	7.8
Total, non-sci/eng(2) .	11.8	11.9	12.0	12.2	12.4	12.8	13.4	13.7	14.3	14.8	12.4	11.8
Total, all fields	9.3	9.4	9.6	9.8	10.0	10.2	10.4	10.4	10.5	10.5	10.0	9.0
MALE												
Total, sci/eng	7.5	7.6	7.8	7.9	8.1	8.2	8.3	8.4	8.4	8.4	8.1	7.4
Total, sciences	7.5	7.5	7.7	7.9	8.1	8.2	8.4	8.5	8.5	8.5	8.1	7.4
Physical sciences ..	6.5	6.4	6.5	6.6	6.7	6.8	6.9	6.9	6.9	6.9	6.7	6.4
Physics/astronomy.	7.2	7.0	7.3	7.2	7.2	7.4	7.3	7.3	7.3	7.2	7.2	6.9
Chemistry	6.1	6.0	6.0	6.2	6.3	6.4	6.5	6.6	6.5	6.5	6.3	6.0
Earth/atmos/mar sci.	8.1	8.4	8.4	8.5	8.9	8.8	8.9	9.1	9.4	9.2	8.8	8.1
Mathematics	6.9	6.9	7.0	7.3	7.7	7.8	7.2	7.7	7.9	7.7	7.4	6.7
Computer/info sci ..	7.3	7.7	7.6	8.4	8.7	8.7	9.1	9.0	9.3	8.6	8.6	8.5
Agric & biol sci ...	7.1	7.1	7.3	7.6	7.9	8.0	8.3	8.4	8.4	8.6	7.8	7.3
Agricultural sci .	8.1	8.0	8.1	8.4	8.6	8.8	9.2	9.6	9.8	10.2	8.8	8.2
Biological sci ...	6.9	7.0	7.2	7.4	7.7	7.7	8.0	8.1	8.1	8.2	7.6	7.2
Social sciences	9.3	9.3	9.6	9.7	9.9	10.2	10.2	10.6	10.6	10.2	9.9	9.0
Psychology	7.7	8.2	8.3	8.8	9.1	9.3	9.6	9.9	9.9	10.1	8.9	7.5
Total, engineering(1) .	7.7	7.9	8.0	8.0	8.0	8.2	8.2	8.2	8.2	8.2	8.1	7.6
Chemical	6.6	6.6	7.0	6.7	6.7	6.9	6.9	6.6	6.9	6.8	6.8	6.4
Civil	8.4	8.4	8.4	8.5	8.6	8.7	8.7	9.2	8.9	9.1	8.7	8.4
Electrical	7.3	7.5	7.7	7.8	8.0	7.9	7.9	7.8	7.9	7.8	7.8	7.3
Materials sci	7.0	7.3	8.0	8.1	7.7	7.3	8.1	8.0	8.0	8.1	7.8	7.6
Mechanical	8.0	7.9	8.2	8.3	7.9	8.2	8.3	8.1	8.5	8.6	8.2	7.8
Total, non-sci/eng(2) .	11.6	11.6	11.8	12.0	12.1	12.3	12.5	12.5	13.1	13.3	12.1	11.5
Total, all fields	8.8	8.8	9.0	9.1	9.3	9.5	9.5	9.7	9.7	9.6	9.3	8.5
FEMALE												
Total, sci/eng	8.0	8.1	8.3	8.6	8.7	8.9	9.1	9.1	9.1	9.0	8.7	8.2
Total, sciences	8.0	8.2	8.3	8.6	8.8	9.0	9.2	9.1	9.2	9.2	8.8	8.3
Physical sciences ..	6.1	6.4	6.4	6.6	6.5	6.6	6.5	6.6	6.5	6.6	6.5	6.4
Physics/astronomy.	7.1	7.6	7.5	7.3	7.7	7.7	7.3	7.7	7.4	7.3	7.4	7.3
Chemistry	5.7	6.1	6.2	6.3	6.2	6.3	6.4	6.2	6.3	6.4	6.2	6.2
Earth/atmos/mar sci.	8.0	7.6	7.7	8.0	8.7	8.7	9.3	8.4	9.0	9.2	8.5	8.3
Mathematics	8.2	7.3	7.6	7.5	7.9	7.6	8.0	9.4	8.6	8.0	8.0	7.4
Computer/info sci ..	8.3	7.8	10.0	10.0	11.0	11.5	9.3	9.3	11.1	12.0	10.6	10.3
Agric & biol sci ...	7.2	7.2	7.3	7.6	7.9	8.3	8.3	8.3	8.4	8.4	8.0	7.6
Agricultural sci .	7.2	7.6	7.4	8.6	7.5	8.6	8.7	8.9	9.4	9.4	8.4	8.3
Biological sci ...	7.2	7.2	7.3	7.5	8.0	8.2	8.2	8.2	8.3	8.3	7.9	7.5
Social sciences	9.8	10.0	10.4	10.5	10.8	11.5	10.9	11.4	11.6	11.5	10.9	10.2
Psychology	8.3	8.6	9.0	9.2	9.4	9.5	9.9	9.9	10.3	10.1	9.4	8.7
Total, engineering(1) .	6.6	7.1	7.6	7.7	7.3	7.1	7.6	7.3	7.0	7.2	7.3	7.2
Chemical	*	*	*	6.5	6.2	6.3	6.4	6.9	6.1	6.3	6.4	6.4
Civil	*	*	*	*	*	*	*	*	7.0	10.5	8.8	8.4
Electrical	*	*	*	*	*	7.4	8.5	6.1	6.8	6.6	6.9	6.9
Materials sci	*	*	*	*	*	8.0	*	7.7	6.8	7.9	7.2	7.3
Mechanical	*	*	*	*	*	6.7	*	*	7.8	7.5	7.2	7.1
Total, non-sci/eng(2) .	12.1	12.3	12.3	12.4	13.3	14.0	14.6	14.9	15.5	16.1	13.7	12.5
Total, all fields	10.5	10.9	11.0	11.2	11.6	11.7	11.8	11.9	11.9	12.0	11.6	10.9

NOTE: See Technical Notes for calculation method of median lapsed time between baccalaureate and doctorate.

* Asterisks indicate too few cases (under 20) present within a cell to compute a median.
(1) Subtotal includes engineering fields not separately shown.
(2) Non-science/engineering doctorates in this table include doctorates whose field of specialization is unclassified.

SOURCE: Survey of Earned Doctorates

Table 6. Country of citizenship of non-U.S. citizens awarded science and engineering doctorates by major field(1): 1960-89

	Year of doctorate														
Country of citizenship	1960-1964	1965-1969	1970-1974	1975-1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1960-1989
TOTAL, SCIENCE AND ENGINEERING															
Total, foreign citizenship	6138	11806	18909	18705	3663	3855	3981	4298	4527	4957	5128	5536	6048	6439	103990
Canada	718	1238	1615	978	155	158	148	179	173	152	177	181	203	218	6293
Mexico & Central America	85	189	252	348	71	97	89	126	105	120	122	114	124	151	1993
Mexico	56	130	182	255	57	75	70	96	76	101	97	86	92	118	1491
Cuba & islands	21	113	135	129	21	23	20	22	32	32	29	23	28	29	657
South America	136	433	1020	1261	268	292	240	269	276	254	300	311	294	288	5642
Argentina	22	77	213	118	25	27	24	34	41	32	40	28	38	41	760
Brazil	29	104	257	481	123	135	93	101	108	83	96	112	94	98	1914
Chile	31	81	156	193	26	34	28	35	31	41	44	45	45	45	835
Colombia	21	58	143	145	22	19	27	25	32	22	24	27	46	26	637
Europe	719	1395	2577	2106	359	405	417	454	466	491	559	623	689	695	11955
Belgium	20	60	128	78	11	20	15	15	17	19	20	16	21	15	455
England	233	450	738	541	87	100	90	87	100	103	76	94	116	95	2910
France	33	87	233	192	16	25	40	33	48	28	34	48	53	51	921
Fed Rep Ger/Ger Dem Rep(2).	76	162	287	169	27	35	36	43	39	48	61	74	77	99	1233
Greece	88	170	262	302	63	64	60	66	78	68	103	123	118	131	1696
Italy	27	55	103	78	15	17	23	30	35	45	48	46	63	54	639
East Asia	1002	2699	4930	4700	848	886	1067	1191	1348	1553	1660	1968	2237	2532	28621
Taiwan	-	-	856	2015	423	444	560	604	664	743	707	787	786	842	9431
China, Peoples Rep of	-	-	-	-	2	-	3	13	60	137	198	290	478	606	1787
China, unspecified	515	1721	2139	353	3	1	3	-	2	3	2	9	5	14	4770
Hong Kong	3	63	240	484	92	100	92	98	87	94	73	87	81	93	1687
Japan	191	280	513	435	69	77	88	103	102	97	108	83	103	104	2353
Korea	196	436	727	703	131	135	172	236	266	323	398	547	620	746	5636
Thailand	59	106	238	469	76	83	92	88	108	96	108	95	96	75	1789
West Asia	1544	3102	4959	4347	905	926	1015	1141	1180	1188	1206	1222	1226	1285	25246
India	997	1857	2867	2145	371	379	357	383	437	458	469	503	520	533	12276
Iran	76	195	424	597	205	194	247	278	287	233	213	182	172	194	3497
Iraq	74	149	159	85	27	27	26	43	26	41	27	43	36	24	787
Israel	136	292	440	434	66	94	82	109	78	66	79	66	61	65	2068
Lebanon	34	85	105	111	19	19	21	24	28	26	28	43	39	49	631
Turkey	43	123	340	374	65	49	68	68	72	84	84	86	81	78	1615
Pakistan	100	246	277	159	42	26	43	38	37	46	59	59	52	61	1245
Australasia	277	578	838	594	120	129	146	159	157	147	148	135	155	163	3746
Australia	103	184	308	187	45	36	46	50	51	39	34	42	39	40	1204
Indonesia, Republic of	35	84	94	114	20	39	34	47	37	42	40	42	42	52	722
New Zealand	37	88	112	90	24	14	19	18	16	19	17	14	17	26	511
Philippines	102	221	322	203	30	40	47	44	51	45	57	35	56	44	1297
Africa	250	758	1188	1212	319	383	391	426	452	501	448	405	449	437	7619
Egypt	152	490	406	219	74	79	83	93	90	107	100	98	115	108	2214
Nigeria	-	-	113	354	88	129	98	106	94	117	79	89	87	55	1409
Country unknown	1386	1301	1395	3030	597	556	448	331	338	519	479	554	643	641	12218
TOTAL, SCIENCES															
Total, foreign citizenship	4812	8651	13385	12922	2513	2612	2655	2809	2984	3223	3413	3649	3959	4154	71741
Canada	621	998	1424	891	135	141	130	156	151	130	159	152	175	180	5443
Mexico & Central America	76	153	199	262	54	73	72	92	83	93	97	87	91	118	1550
Mexico	49	104	135	181	44	54	57	67	57	77	77	65	65	90	1122
Cuba & islands	18	94	114	115	19	23	17	13	27	25	23	17	26	24	555
South America	112	342	814	983	216	218	175	193	214	201	237	232	225	215	4377
Argentina	22	69	197	97	15	21	19	26	31	21	30	19	32	35	634
Brazil	19	74	176	366	99	99	64	75	81	68	79	74	69	68	1411
Chile	27	64	125	163	23	24	21	24	29	35	36	35	36	36	678
Colombia	18	46	108	109	19	16	23	20	21	18	20	20	37	21	496
Europe	560	1049	1888	1591	271	302	304	334	357	380	411	471	518	502	8938
Belgium	13	40	85	49	7	15	8	8	11	10	16	10	15	10	297
England	198	371	625	478	68	84	74	77	88	97	64	85	105	81	2495
France	17	52	137	128	10	17	28	19	31	17	21	32	31	33	573
Fed Rep Ger/Ger Dem Rep(2).	65	125	213	134	22	27	30	40	37	41	51	67	66	83	1001
Greece	69	122	164	193	41	36	37	34	43	38	54	62	60	64	1017
Italy	20	42	74	68	13	15	18	23	25	38	40	36	56	40	508
East Asia	692	1741	3254	3129	544	524	645	710	766	887	978	1165	1348	1556	17939
Taiwan	-	-	549	1267	251	226	303	327	342	356	356	389	386	421	5173
China, Peoples Rep of	-	-	-	-	1	-	3	8	33	89	143	206	345	454	1282
China, unspecified	294	992	1331	238	3	-	1	-	2	3	-	6	4	6	2880
Hong Kong	3	51	194	342	63	71	60	68	57	66	46	65	48	55	1189
Japan	152	208	313	295	42	46	57	72	64	72	80	68	79	85	1633
Korea	160	322	497	453	90	85	109	132	151	190	223	309	363	439	3523
Thailand	51	84	198	329	56	60	67	61	72	71	82	75	72	59	1337
West Asia	1204	2231	3098	2487	548	554	603	650	716	674	736	745	693	714	15653
India	794	1328	1618	1105	187	203	197	205	243	246	265	299	265	282	7237
Iran	50	135	254	339	126	120	148	140	168	117	113	94	91	86	1981
Iraq	64	118	118	61	21	23	22	36	20	35	23	33	28	15	617
Israel	85	202	338	297	45	61	57	64	56	44	55	47	38	46	1435
Lebanon	32	65	74	78	13	11	13	11	13	15	17	16	21	25	404
Turkey	20	50	185	180	34	19	25	32	31	28	35	43	39	26	747
Pakistan	91	205	227	112	34	18	30	25	27	28	36	42	32	46	953
Australasia	247	501	722	526	106	118	125	136	128	119	127	111	131	137	3234
Australia	91	158	259	167	41	32	42	42	46	35	28	37	37	38	1053
Indonesia, Republic of	28	74	78	96	16	35	27	38	26	27	31	29	31	40	576
New Zealand	37	77	[illegible]	83	20	14	13	18	12	15	16	12	13	23	452
Philippines	91	191	284	180	28	37	43	38	42	40	52	31	49	35	1141
Africa	200	[illegible]	[illegible]	902	223	279	293	301	313	364	330	298	311	299	5605
Egypt	113	384	234	98	35	38	45	50	45	59	47	58	68	59	1333
Nigeria	-	-	97	279	68	98	82	77	64	88	64	73	66	44	1100
Country unknown	1082	933	989	2036	397	380	291	224	229	350	315	371	441	409	8447

See footnotes at end of table.

Table 6. Country of citizenship of non-U.S. citizens awarded science and engineering doctorates by major field(1): 1960-89--continued

Country of citizenship	1960-1964	1965-1969	1970-1974	1975-1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1960-1989
	Year of doctorate														
PHYSICAL SCIENCES															
Total, foreign citizenship ...	1256	2231	3413	3099	577	589	625	659	683	755	891	945	1002	1034	17759
Canada	108	176	213	97	19	18	14	24	20	19	24	22	28	22	804
Mexico & Central America	13	22	36	37	5	4	12	14	15	12	17	16	15	10	228
Mexico	11	18	24	26	4	3	9	10	9	12	15	14	11	6	172
Cuba & islands	4	12	21	15	3	4	4	2	4	4	5	3	4	5	90
South America	28	58	150	153	27	28	25	34	36	38	41	35	36	33	722
Argentina	6	14	50	16	6	3	5	4	11	2	3	1	10	5	136
Brazil	6	20	30	35	7	8	8	6	5	7	7	6	5	5	155
Chile	8	8	26	35	5	5	3	8	4	11	6	6	4	6	135
Colombia	1	3	15	18	3	1	2	4	5	3	5	4	4	4	72
Europe	161	273	469	349	56	67	73	76	79	94	108	127	127	118	2177
Belgium	3	11	19	10	1	1	3	-	2	2	4	1	3	2	62
England	50	84	135	81	12	19	10	17	21	22	10	19	20	14	514
France	5	16	39	20	2	3	7	5	7	7	6	13	4	9	143
Fed Rep Ger/Ger Dem Rep(2).	23	39	49	26	5	7	8	5	8	4	16	22	16	24	252
Greece	26	46	63	66	13	4	10	11	16	9	19	17	20	20	340
Italy	3	11	30	17	1	5	9	9	3	12	9	8	15	7	139
East Asia	263	723	1282	1040	169	164	199	220	233	254	345	394	422	510	6218
Taiwan	-	-	227	528	99	96	124	122	125	112	136	132	104	133	1938
China, Peoples Rep of	-	-	-	-	1	-	3	3	19	35	72	112	171	212	628
China, unspecified	126	464	604	108	1	-	-	-	-	2	-	2	4	2	1313
Hong Kong	3	32	106	148	26	22	21	34	17	21	24	24	15	16	509
Japan	54	83	111	76	6	12	12	14	15	13	21	15	11	12	455
Korea	66	104	161	113	23	24	24	29	38	52	65	89	98	114	1000
Thailand	6	6	21	32	10	4	10	12	11	13	20	9	9	12	175
West Asia	312	554	734	682	166	162	179	178	193	197	220	208	199	184	4168
India	221	404	484	424	91	92	94	79	102	107	113	100	103	93	2507
Iran	13	21	59	70	29	30	30	28	33	26	24	34	25	31	453
Iraq	12	19	17	1	-	1	2	6	2	1	4	3	3	2	73
Israel	21	31	33	50	5	8	8	5	7	5	6	8	2	5	194
Lebanon	11	15	23	15	3	4	5	3	3	5	6	4	5	1	103
Turkey	6	19	37	38	12	3	10	11	6	6	6	13	10	6	183
Pakistan	15	22	27	26	11	3	7	7	5	3	10	10	6	5	157
Australasia	37	76	122	59	9	12	13	10	13	10	14	7	22	23	427
Australia	10	16	30	18	3	3	4	3	3	3	1	3	4	6	107
Indonesia, Republic of	9	15	19	6	2	2	2	1	2	3	1	-	4	4	70
New Zealand	4	19	14	10	2	-	1	4	-	2	7	1	3	4	71
Philippines	14	25	59	25	2	7	6	2	7	2	5	3	11	9	177
Africa	29	88	103	92	16	22	32	38	36	38	34	41	25	34	628
Egypt	23	62	38	21	3	7	7	12	3	11	4	13	4	7	215
Nigeria	-	-	5	23	6	4	6	6	7	10	7	6	6	1	87
Country unknown	301	249	283	575	107	108	74	63	54	89	83	92	124	95	2297
PHYSICS AND ASTRONOMY															
Total, foreign citizenship ...	501	1005	1643	1472	240	256	277	307	302	338	405	455	485	489	8175
Canada	51	97	114	61	12	8	8	14	14	12	14	15	17	17	454
Mexico & Central America	6	10	19	15	1	2	7	8	11	5	11	10	9	3	117
Mexico	6	9	16	12	1	2	7	6	7	5	9	10	8	1	99
Cuba & islands	2	5	10	7	1	-	1	-	-	1	3	-	2	2	34
South America	15	35	93	74	19	11	16	22	17	19	22	16	18	16	393
Argentina	4	8	42	10	5	2	5	4	6	1	3	1	6	2	99
Brazil	5	17	22	24	5	2	4	5	4	5	5	3	3	4	108
Chile	4	3	14	15	3	3	2	4	2	7	4	1	3	3	68
Colombia	-	1	2	4	1	1	2	2	1	2	3	-	2	2	23
Europe	60	152	299	221	36	38	45	45	47	53	67	81	77	71	1292
Belgium	3	7	14	10	1	-	2	-	2	1	4	1	2	2	49
England	12	43	76	44	9	10	2	5	11	10	5	10	7	4	248
France	4	8	22	11	1	3	6	3	3	3	3	5	1	6	79
Fed Rep Ger/Ger Dem Rep(2).	15	20	29	17	3	4	6	4	7	3	11	18	10	15	162
Greece	4	21	44	49	7	2	6	9	7	5	8	9	13	13	197
Italy	1	8	23	12	1	3	6	8	3	10	8	6	12	6	107
East Asia	112	300	516	426	57	69	70	82	87	113	158	182	204	219	2595
Taiwan	-	-	86	211	26	39	41	41	38	35	45	36	33	42	673
China, Peoples Rep of	-	-	-	-	1	-	2	-	13	24	57	77	100	114	388
China, unspecified	46	194	227	37	-	-	-	-	-	2	-	2	3	1	512
Hong Kong	1	14	61	64	15	9	8	18	10	12	8	16	11	7	254
Japan	25	29	43	35	4	6	7	7	9	8	11	8	4	6	202
Korea	36	46	74	51	10	11	10	11	13	27	27	38	47	46	447
Thailand	-	2	6	11	-	1	1	2	2	4	6	1	2	1	39
West Asia	130	230	400	367	66	81	82	96	91	78	84	95	85	87	1972
India	88	176	277	233	35	43	42	41	50	39	39	41	44	40	1188
Iran	6	7	32	36	9	13	11	15	18	8	8	20	14	18	215
Iraq	4	5	3	-	-	1	1	6	2	-	2	1	1	2	28
Israel	8	17	15	29	4	7	4	4	3	4	5	4	1	3	108
Lebanon	7	6	16	3	-	2	2	1	1	5	3	-	4	1	51
Turkey	4	6	23	25	8	3	8	6	2	4	5	6	5	5	110
Pakistan	9	6	12	10	2	2	4	4	1	1	3	5	1	2	62
Australasia	8	35	41	32	4	3	7	4	5	5	5	4	12	11	176
Australia	3	11	17	12	1	1	2	1	3	1	-	3	4	4	63
Indonesia, Republic of	3	8	9	2	2	1	1	-	-	3	-	-	2	2	33
New Zealand	-	10	6	7	1	-	-	2	-	1	4	1	2	3	37
Philippines	2	6	9	11	-	1	4	1	2	-	1	-	4	2	43
Africa	6	26	40	36	5	4	13	14	9	10	5	16	12	14	210
Egypt	2	13	9	8	1	1	4	4	1	5	1	6	2	3	60
Nigeria	-	-	2	6	2	-	1	1	-	1	1	2	4	-	20
Country unknown	111	115	111	233	39	40	28	22	21	42	36	36	49	49	932

See footnotes at end of table.

Table 6. Country of citizenship of non-U.S. citizens awarded science and engineering doctorates by major field(1): 1960-89--continued

	Year of doctorate														
Country of citizenship	1960-1964	1965-1969	1970-1974	1975-1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1960-1989
CHEMISTRY															
Total, foreign citizenship	755	1226	1770	1627	337	333	348	352	381	417	486	490	517	545	9584
Canada	57	79	99	36	7	10	6	10	6	7	10	7	11	5	350
Mexico & Central America	7	12	17	22	4	2	5	6	4	7	6	6	6	7	111
Mexico	5	9	8	14	3	1	2	4	2	7	6	4	3	5	73
Cuba & islands	2	7	11	8	2	4	3	2	4	3	2	3	2	3	56
South America	13	23	57	79	8	17	9	12	19	19	19	19	18	17	329
Argentina	2	6	8	6	1	1	-	-	5	1	-	-	4	3	37
Brazil	1	3	8	11	2	6	4	1	1	2	2	3	2	1	47
Chile	4	5	12	20	2	2	1	4	2	4	2	5	1	3	67
Colombia	1	2	13	14	2	-	-	2	4	1	2	4	2	2	49
Europe	101	121	170	128	20	29	28	31	32	41	41	46	50	47	885
Belgium	-	4	5	-	-	1	1	-	-	1	-	-	1	-	13
England	38	41	59	37	3	9	8	12	10	12	5	9	13	10	266
France	1	8	17	9	1	-	1	2	4	4	3	8	3	3	64
Fed Rep Ger/Ger Dem Rep(2)	8	19	20	9	2	3	2	1	1	1	5	4	6	9	90
Greece	22	25	19	17	6	2	4	2	9	4	11	8	7	7	143
Italy	2	3	7	5	-	2	3	1	-	2	1	2	3	1	32
East Asia	151	423	766	614	112	95	129	138	146	141	187	212	218	291	3623
Taiwan	-	-	141	317	73	57	83	81	87	77	91	96	71	91	1265
China, Peoples Rep of	-	-	-	-	-	-	1	3	6	11	15	35	71	98	240
China, unspecified	80	270	377	71	1	-	-	-	-	-	-	-	1	1	801
Hong Kong	2	18	45	84	11	13	13	16	7	9	16	8	4	9	255
Japan	29	54	68	41	2	6	5	7	6	5	10	7	7	6	253
Korea	30	58	87	62	13	13	14	18	25	25	38	51	51	68	553
Thailand	6	4	15	21	10	3	9	10	9	9	14	8	7	11	136
West Asia	182	324	334	315	100	81	97	82	102	119	136	113	114	97	2196
India	133	228	207	191	56	49	52	38	52	68	74	59	59	53	1319
Iran	7	14	27	34	20	17	19	13	15	18	16	14	11	13	238
Iraq	8	14	14	1	-	-	1	-	-	1	2	2	2	-	45
Israel	13	14	18	21	1	1	4	1	4	1	1	4	1	2	86
Lebanon	4	9	7	12	3	2	3	2	2	-	3	4	1	-	52
Turkey	2	13	14	13	4	-	2	5	4	2	1	7	5	1	73
Pakistan	6	16	15	16	9	1	3	3	4	2	7	5	5	3	95
Australasia	29	41	81	27	5	9	6	6	8	5	9	3	10	12	251
Australia	7	5	13	6	2	2	2	2	-	2	1	-	-	2	44
Indonesia, Republic of	6	7	10	4	-	1	1	1	2	-	1	-	2	2	37
New Zealand	4	9	8	3	1	-	1	2	-	1	3	-	1	1	34
Philippines	12	19	50	14	2	6	2	1	5	2	4	3	7	7	134
Africa	23	62	63	56	11	18	19	24	27	28	29	25	13	20	418
Egypt	21	49	29	13	2	6	3	8	2	6	3	7	2	4	155
Nigeria	-	-	3	17	4	4	5	5	7	9	6	4	2	1	67
Country unknown	190	134	172	342	68	68	46	41	33	47	47	56	75	46	1365
EARTH, ATMOS, & MARINE SCIENCES															
Total, foreign citizenship	220	380	544	560	106	101	110	136	131	151	130	150	168	151	3038
Canada	65	102	90	56	8	7	8	8	5	9	10	9	7	9	393
Mexico & Central America	-	1	4	14	7	5	3	10	6	3	-	7	4	8	72
Mexico	-	1	4	12	7	5	2	8	5	3	-	6	3	7	63
Cuba & islands	-	1	3	7	-	1	-	-	-	-	-	1	-	-	13
South America	7	10	31	44	14	6	7	7	16	12	6	17	11	10	198
Argentina	1	3	5	3	1	1	2	2	5	1	1	1	-	2	28
Brazil	-	1	7	14	7	1	4	4	7	7	5	7	6	3	73
Chile	1	3	4	7	1	1	-	-	-	1	-	2	3	3	26
Colombia	1	1	2	6	1	1	1	-	-	1	-	1	1	-	16
Europe	26	61	89	73	7	21	18	19	17	22	24	25	39	25	466
Belgium	-	2	6	6	-	3	-	1	1	1	-	3	-	-	23
England	15	28	29	27	4	7	10	4	6	6	6	7	9	7	165
France	1	3	8	9	1	2	1	3	2	2	3	-	4	3	42
Fed Rep Ger/Ger Dem Rep(2)	1	11	5	3	-	2	-	2	1	2	2	3	8	8	48
Greece	-	4	-	6	-	2	2	2	-	-	2	2	3	1	24
Italy	2	2	4	1	-	-	-	2	-	2	3	3	3	3	25
East Asia	15	37	92	129	28	12	32	40	31	53	35	45	50	55	654
Taiwan	-	-	23	64	20	9	23	22	20	28	13	22	13	20	277
China, Peoples Rep of	-	-	-	-	-	-	-	1	3	10	10	3	22	18	67
China, unspecified	8	27	44	11	-	-	-	-	-	-	-	-	-	1	91
Hong Kong	-	-	-	7	1	3	-	3	1	2	1	1	-	1	20
Japan	5	4	8	12	-	-	2	6	1	4	5	2	3	4	56
Korea	2	2	12	27	3	-	6	3	4	8	4	16	12	8	107
Thailand	-	1	4	6	2	-	-	3	2	1	1	1	-	2	23
West Asia	35	70	118	100	16	10	13	17	25	17	23	21	22	21	508
India	23	30	51	43	2	7	6	6	7	5	12	6	5	9	212
Iran	5	8	11	8	10	1	3	5	9	2	2	2	3	2	71
Iraq	-	10	3	-	-	-	1	-	-	-	2	-	-	1	17
Israel	4	8	20	15	2	-	-	2	2	3	5	5	2	4	72
Lebanon	-	-	-	2	-	-	-	-	-	-	-	-	-	-	2
Turkey	1	4	14	8	2	-	1	3	3	3	-	1	4	2	46
Pakistan	-	5	7	3	-	1	2	-	2	1	-	1	4	1	27
Australasia	17	33	44	32	4	9	10	6	9	7	9	9	7	9	205
Australia	7	15	28	18	4	3	5	5	5	4	3	5	1	4	107
Indonesia, Republic of	2	2	3	2	-	1	-	-	1	1	-	-	2	1	15
New Zealand	4	12	6	4	-	4	4	-	2	1	1	-	-	3	41
Philippines	4	4	7	8	-	1	1	1	1	1	5	4	4	1	42
Africa	6	31	42	27	9	17	9	15	13	12	10	4	12	9	216
Egypt	3	21	12	6	-	1	1	1	2	5	1	-	3	2	58
Nigeria	-	-	3	8	4	8	5	6	5	2	1	1	2	2	47
Country unknown	49	34	31	78	13	13	10	14	9	16	13	12	16	5	313

See footnotes at end of table.

Table 6. Country of citizenship of non-U.S. citizens awarded science and engineering doctorates by major field(1): 1960-89--continued

Country of citizenship	Year of doctorate 1960-1964	1965-1969	1970-1974	1975-1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1960-1989
MATHEMATICS															
Total, foreign citizenship ...	349	668	1192	1133	201	229	233	255	268	280	308	353	349	378	6196
Canada	36	92	110	66	13	10	13	15	7	10	7	10	11	11	411
Mexico & Central America	4	5	20	28	2	7	5	7	4	9	8	7	4	7	117
Mexico	4	5	18	26	2	6	4	7	3	9	7	6	4	7	108
Cuba & islands	2	2	8	4	-	2	-	-	-	1	1	1	2	2	25
South America	15	35	90	102	14	15	14	26	20	20	25	25	27	22	450
Argentina	3	10	39	19	3	1	1	5	5	5	4	2	3	8	108
Brazil	5	14	27	38	5	7	5	10	2	6	9	7	11	6	152
Chile	3	6	6	17	2	2	2	3	5	6	3	4	5	4	68
Colombia	2	2	9	9	1	3	3	1	4	2	3	3	4	1	47
Europe	48	107	218	181	27	42	55	45	53	47	59	72	67	76	1097
Belgium	2	2	10	2	-	2	1	1	2	-	2	3	1	1	29
England	13	26	42	29	3	5	9	5	7	7	2	4	5	6	163
France	5	16	33	23	1	1	5	2	4	-	2	6	6	2	106
Fed Rep Ger/Ger Dem Rep(2).	6	17	23	20	1	2	8	4	7	6	7	12	9	12	134
Greece	3	10	15	20	4	5	6	3	4	8	8	11	7	13	117
Italy	3	5	5	15	2	4	2	6	9	8	8	5	8	10	90
East Asia	59	137	304	320	50	53	52	63	74	83	104	114	128	147	1688
Taiwan	-	-	68	168	34	32	31	34	34	30	35	28	31	30	555
China, Peoples Rep of	-	-	-	-	-	-	-	2	7	18	30	31	44	67	199
China, unspecified	31	82	124	28	-	-	-	-	1	1	-	3	-	2	272
Hong Kong	-	7	29	44	4	7	9	5	8	10	6	9	9	6	153
Japan	15	14	26	26	5	4	2	9	7	6	9	5	7	9	144
Korea	11	23	32	33	5	10	5	8	11	14	18	29	31	28	258
Thailand	1	4	3	2	-	-	1	2	3	2	2	4	4	1	29
West Asia	106	173	268	213	40	48	54	62	68	52	53	66	45	54	1302
India	72	114	175	94	14	24	19	23	32	14	16	27	12	16	652
Iran	2	12	16	29	10	9	20	10	15	10	9	5	4	5	156
Iraq	8	7	3	3	-	-	-	-	-	3	1	2	2	2	31
Israel	14	23	30	36	4	7	4	9	5	4	9	7	1	4	157
Lebanon	-	2	7	14	-	-	-	1	2	2	3	3	3	2	39
Turkey	-	1	17	13	1	3	2	4	5	5	4	2	3	2	62
Pakistan	5	6	5	2	3	-	2	2	-	1	1	3	1	2	33
Australasia	10	29	49	19	8	7	6	8	10	10	11	9	8	7	191
Australia	1	15	23	6	4	2	4	6	6	5	6	5	3	5	91
Indonesia, Republic of	2	4	2	1	-	1	1	-	-	-	-	-	3	-	14
New Zealand	3	8	15	8	3	4	1	-	2	1	3	2	1	-	51
Philippines	4	2	9	4	1	-	-	2	2	4	2	2	-	2	34
Africa	4	10	44	36	7	13	12	11	13	17	15	19	24	18	243
Egypt	1	4	10	8	4	3	2	5	6	3	1	6	8	3	64
Nigeria	-	-	4	11	-	2	3	2	2	2	2	1	1	2	32
Country unknown	65	78	81	164	40	32	22	18	19	31	25	30	33	34	672
COMPUTER/INFORMATION SCIENCES															
Total, foreign citizenship ...	-	-	-	79	56	60	71	99	106	113	170	175	218	236	1383
Canada	-	-	-	2	2	3	3	5	4	2	4	3	6	8	42
Mexico & Central America	-	-	-	2	-	1	3	1	1	-	3	3	-	4	18
Mexico	-	-	-	2	-	1	3	-	1	-	2	3	-	3	15
Cuba & islands	-	-	-	-	-	-	-	-	-	1	-	-	1	-	2
South America	-	-	-	4	5	6	1	5	2	6	7	6	4	4	50
Argentina	-	-	-	-	1	-	-	-	-	1	-	1	-	1	4
Brazil	-	-	-	3	2	5	1	3	1	3	2	5	2	3	30
Chile	-	-	-	1	-	1	-	1	-	1	2	-	-	-	6
Colombia	-	-	-	-	1	-	-	1	-	-	-	-	2	-	4
Europe	-	-	-	16	15	10	6	17	15	12	24	19	30	20	184
Belgium	-	-	-	-	-	1	-	1	-	2	2	-	1	1	8
England	-	-	-	1	3	1	-	3	2	2	5	4	5	2	28
France	-	-	-	4	-	1	-	-	3	-	1	-	2	-	11
Fed Rep Ger/Ger Dem Rep(2).	-	-	-	2	3	1	2	2	4	1	3	2	6	4	30
Greece	-	-	-	1	-	-	3	1	4	2	3	6	2	2	24
Italy	-	-	-	1	3	1	-	-	1	-	-	-	3	2	11
East Asia	-	-	-	12	11	10	22	23	35	42	51	61	96	90	453
Taiwan	-	-	-	8	6	9	15	16	17	18	29	27	49	34	228
China, Peoples Rep of	-	-	-	-	-	-	-	-	-	6	10	12	14	21	63
China, unspecified	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1
Hong Kong	-	-	-	3	-	1	2	-	3	3	1	6	4	10	33
Japan	-	-	-	1	2	-	2	3	2	2	-	-	4	1	17
Korea	-	-	-	-	1	-	1	4	10	9	8	13	21	17	84
Thailand	-	-	-	-	1	-	-	-	1	3	1	2	1	6	15
West Asia	-	-	-	27	11	16	26	31	36	27	55	62	55	73	419
India	-	-	-	14	3	6	12	15	16	18	28	38	37	44	231
Iran	-	-	-	2	1	3	5	6	7	2	10	7	4	8	55
Iraq	-	-	-	-	-	-	-	-	-	1	-	1	-	-	2
Israel	-	-	-	7	4	7	5	7	7	5	7	5	5	9	68
Lebanon	-	-	-	-	-	-	-	1	1	-	-	2	-	4	8
Turkey	-	-	-	2	1	-	2	1	3	-	5	3	3	1	21
Pakistan	-	-	-	-	1	-	1	-	1	-	1	1	1	2	8
Australasia	-	-	-	1	2	3	3	2	3	2	3	4	3	4	30
Australia	-	-	-	1	1	2	1	1	2	-	2	2	3	-	15
Indonesia, Republic of	-	-	-	-	-	1	-	1	1	-	-	-	-	3	6
New Zealand	-	-	-	-	-	-	1	-	-	-	-	-	-	1	2
Philippines	-	-	-	-	-	-	1	-	-	2	1	1	-	-	5
Africa	-	-	-	4	2	2	1	5	6	9	13	5	7	10	64
Egypt	-	-	-	1	1	-	1	1	3	5	6	2	2	4	26
Nigeria	-	-	-	1	-	1	-	1	2	-	2	1	-	2	10
Country unknown	-	-	-	11	8	9	6	10	4	12	10	12	16	23	121

See footnotes at end of table.

Table 6. Country of citizenship of non-U.S. citizens awarded science and engineering doctorates by major field(1): 1960-89--continued

Country of citizenship	1960-1964	1965-1969	1970-1974	1975-1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1960-1989
	Year of doctorate														
AGRICULTURAL & BIOLOGICAL SCI															
Total, foreign citizenship	1780	3185	4229	3831	778	772	743	779	824	930	876	989	1164	1176	22056
Canada	248	307	387	195	36	26	36	41	42	39	53	56	58	58	1582
Mexico & Central America	51	100	88	115	24	32	33	36	30	52	39	28	48	54	730
Mexico	30	71	55	70	20	24	29	29	19	39	30	18	37	44	515
Cuba & islands	6	43	33	33	3	5	3	7	7	7	2	5	7	7	168
South America	45	141	328	386	96	95	73	77	83	79	86	96	95	88	1768
Argentina	6	14	39	17	2	8	5	6	4	8	8	5	13	13	148
Brazil	5	16	60	162	47	48	28	34	44	27	33	36	32	29	601
Chile	12	29	58	67	10	6	12	8	10	11	12	14	14	14	277
Colombia	13	29	59	40	7	6	11	10	7	8	5	6	13	9	223
Europe	174	301	448	365	68	57	57	70	66	89	77	87	106	115	2080
Belgium	3	12	21	7	-	-	1	4	2	2	5	3	5	2	67
England	60	116	172	127	19	20	20	17	23	31	21	25	29	26	706
France	1	5	16	16	-	3	1	2	3	4	5	3	5	12	76
Fed Rep Ger/Ger Dem Rep(2).	16	20	33	22	6	4	4	10	4	12	11	8	10	12	172
Greece	22	40	37	54	12	8	6	7	7	7	9	8	15	10	242
Italy	7	4	10	11	3	1	1	4	3	5	8	7	4	4	72
East Asia	185	528	966	943	152	161	172	187	193	230	211	307	340	384	4959
Taiwan	-	-	177	383	68	59	80	88	105	105	89	125	122	128	1529
China, Peoples Rep of	-	-	-	-	-	-	-	2	3	18	18	38	77	113	269
China, unspecified	85	323	430	69	2	-	-	-	-	-	-	1	-	1	911
Hong Kong	-	9	48	103	22	27	18	21	18	19	8	15	8	5	321
Japan	42	43	50	47	7	7	8	7	10	12	12	11	12	12	280
Korea	26	87	102	100	14	20	25	35	26	36	39	65	82	94	751
Thailand	22	48	105	165	21	31	24	15	20	25	31	32	27	19	585
West Asia	505	899	1056	660	141	132	141	154	167	161	168	177	189	186	4736
India	361	551	592	307	45	40	34	39	55	56	52	64	65	76	2337
Iran	13	61	80	96	36	31	46	32	36	20	21	15	20	14	521
Iraq	29	52	72	44	19	21	15	27	16	21	15	21	20	8	380
Israel	18	59	72	39	6	8	6	7	5	4	5	6	10	8	253
Lebanon	9	25	16	18	2	2	3	2	3	4	2	2	5	13	106
Turkey	8	7	28	35	7	4	3	6	2	4	7	6	6	4	127
Pakistan	37	103	114	42	10	6	8	7	4	14	7	12	12	22	398
Australasia	109	253	297	191	40	41	45	47	47	45	41	35	48	50	1289
Australia	48	79	91	35	14	6	14	11	16	10	3	8	9	12	356
Indonesia, Republic of	5	27	39	53	4	18	11	18	9	11	15	10	9	15	244
New Zealand	15	25	34	27	6	3	4	6	4	8	1	6	7	6	152
Philippines	41	122	132	76	16	14	16	12	17	15	22	11	23	17	534
Africa	94	310	318	327	105	123	115	104	125	140	128	106	136	119	2250
Egypt	44	208	94	36	19	14	21	16	21	22	18	23	38	30	604
Nigeria	-	-	35	92	38	46	33	27	20	30	22	27	30	16	416
Country unknown	363	303	308	616	113	100	68	56	64	88	71	92	137	115	2494
AGRICULTURAL SCIENCES															
Total, foreign citizenship	589	1060	1521	1506	331	360	283	343	349	398	368	337	416	400	8261
Canada	81	91	118	38	8	5	8	14	9	12	13	13	11	12	433
Mexico & Central America	26	52	30	60	17	16	15	18	20	32	23	12	27	21	369
Mexico	17	43	17	40	15	10	13	15	15	25	17	8	19	18	272
Cuba & islands	5	20	16	15	1	2	-	3	4	4	1	2	3	4	80
South America	7	64	164	223	58	59	39	43	54	43	45	48	51	43	941
Argentina	-	3	11	7	-	4	3	3	2	6	3	3	7	6	58
Brazil	-	3	46	116	37	35	19	27	34	16	27	25	23	14	422
Chile	1	8	30	31	2	2	3	1	2	2	4	3	4	4	97
Colombia	4	16	29	23	6	2	6	2	3	6	-	3	7	7	114
Europe	54	102	127	105	19	15	10	20	19	20	19	16	25	27	578
Belgium	-	4	6	1	-	-	1	2	1	1	2	-	-	-	18
England	12	37	34	18	5	1	3	4	4	4	3	3	4	7	139
France	-	2	4	3	-	1	-	1	2	2	3	-	1	2	21
Fed Rep Ger/Ger Dem Rep(2).	8	5	4	1	-	1	-	3	1	-	2	1	-	2	28
Greece	6	15	16	23	4	4	1	3	2	2	-	3	4	1	84
Italy	1	-	2	1	2	1	-	-	1	2	2	1	1	-	14
East Asia	37	84	227	317	47	62	62	58	57	68	66	77	85	98	1345
Taiwan	-	-	38	103	14	19	26	25	33	25	28	33	27	32	403
China, Peoples Rep of	-	-	-	-	-	-	-	1	-	2	2	2	14	21	42
China, unspecified	20	40	84	11	-	-	-	-	-	-	-	-	-	-	155
Hong Kong	-	-	2	4	4	-	2	-	2	1	-	1	1	-	17
Japan	6	5	10	14	2	3	2	-	-	4	4	2	3	2	57
Korea	4	18	33	48	5	10	9	12	10	12	11	21	25	31	249
Thailand	7	14	43	91	15	21	12	7	8	14	15	8	10	8	273
West Asia	178	307	454	288	65	64	50	79	61	73	75	59	70	63	1886
India	125	191	246	115	9	12	7	13	14	13	12	6	11	8	782
Iran	6	24	32	49	25	23	21	17	15	10	6	5	9	2	244
Iraq	11	27	34	32	15	12	5	18	9	14	11	12	14	8	222
Israel	4	12	19	10	1	1	1	3	1	1	4	1	1	2	61
Lebanon	2	5	8	7	1	-	2	1	1	2	-	1	5	5	40
Turkey	4	3	16	16	1	1	1	2	2	3	2	2	4	1	58
Pakistan	11	29	49	18	4	3	4	6	-	10	5	7	5	17	168
Australasia	41	120	144	112	23	26	22	29	27	24	27	19	26	28	668
Australia	20	39	39	18	5	4	3	2	7	6	1	1	5	3	153
Indonesia, Republic of	2	10	18	34	3	12	8	14	6	7	12	8	8	14	156
New Zealand	3	12	16	12	2	1	4	5	2	5	1	1	3	2	69
Philippines	16	59	71	48	13	9	7	8	12	5	13	9	10	9	289
Africa	31	134	141	188	61	80	57	60	70	89	71	57	72	67	1178
Egypt	10	88	40	16	13	8	6	5	5	7	7	9	23	18	255
Nigeria	-	-	17	52	23	27	15	18	10	16	10	14	12	8	222
Country unknown	129	86	100	160	32	31	20	19	28	33	28	34	46	37	783

See footnotes at end of table.

Table 6. Country of citizenship of non-U.S. citizens awarded science and engineering doctorates by major field(1): 1960-89--continued

	Year of doctorate														
Country of citizenship	1960-1964	1965-1969	1970-1974	1975-1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1960-1989
BIOLOGICAL SCIENCES															
Total, foreign citizenship	1191	2125	2708	2325	447	412	460	436	475	532	508	652	748	776	13795
Canada	167	216	269	157	28	21	28	27	33	27	40	43	47	46	1149
Mexico & Central America	25	48	58	55	7	16	18	18	10	20	16	16	21	33	361
Mexico	13	28	38	30	5	14	16	14	4	14	13	10	18	26	243
Cuba & islands	1	23	17	18	2	3	3	4	3	3	1	3	4	3	88
South America	38	77	164	163	38	36	34	34	29	36	41	48	44	45	827
Argentina	6	11	28	10	2	4	2	3	2	2	5	2	6	7	90
Brazil	5	13	14	46	10	13	9	7	10	11	6	11	9	15	179
Chile	11	21	28	36	8	4	9	7	8	9	8	11	10	10	180
Colombia	9	13	30	17	1	4	5	8	4	2	5	3	6	2	109
Europe	120	199	321	260	49	42	47	50	47	69	58	71	81	88	1502
Belgium	3	8	15	6	-	-	-	2	1	1	3	3	5	2	49
England	48	79	138	109	14	19	17	13	19	27	18	22	25	19	567
France	1	3	12	13	-	2	1	1	1	2	2	3	4	10	55
Fed Rep Ger/Ger Dem Rep(2).	8	15	29	21	6	3	4	7	3	12	9	7	10	10	144
Greece	16	25	21	31	8	4	5	4	5	5	9	5	11	9	158
Italy	6	4	8	10	1	-	1	4	2	3	6	6	3	4	58
East Asia	148	444	739	626	105	99	110	129	136	162	145	230	255	286	3614
Taiwan	-	-	139	280	54	40	54	63	72	80	61	92	95	96	1126
China, Peoples Rep of	-	-	-	-	-	-	-	1	3	16	16	36	63	92	227
China, unspecified	65	283	346	58	2	-	-	-	-	-	-	1	-	1	756
Hong Kong	-	9	46	99	18	27	16	21	16	18	8	14	7	5	304
Japan	36	38	40	33	5	4	6	7	10	8	8	9	9	10	223
Korea	22	69	69	52	9	10	16	23	16	24	28	44	57	63	502
Thailand	15	34	62	74	6	10	12	8	12	11	16	24	17	11	312
West Asia	327	592	602	372	76	68	91	75	106	88	93	118	119	123	2850
India	236	360	346	192	36	28	27	26	41	43	40	58	54	68	1555
Iran	7	37	48	47	11	8	25	15	21	10	15	10	11	12	277
Iraq	18	25	38	12	4	9	10	9	7	7	4	9	6	-	158
Israel	14	47	53	29	5	7	5	4	4	3	1	5	9	6	192
Lebanon	7	20	8	11	1	2	1	1	2	2	2	1	-	8	66
Turkey	4	4	12	19	6	3	2	4	-	1	5	4	2	3	69
Pakistan	26	74	65	24	6	3	4	1	4	4	2	5	7	5	230
Australasia	68	133	153	79	17	15	23	18	20	21	14	16	22	22	621
Australia	28	40	52	17	9	2	11	9	9	4	2	7	4	9	203
Indonesia, Republic of	3	17	21	19	1	6	3	4	3	4	3	2	1	1	88
New Zealand	12	13	18	15	4	2	-	1	2	3	-	5	4	4	83
Philippines	25	63	61	28	3	5	9	4	5	10	9	2	13	8	245
Africa	63	176	177	139	44	43	58	44	55	51	57	49	64	52	1072
Egypt	34	120	54	20	6	6	15	11	16	15	11	14	15	12	349
Nigeria	-	-	18	40	15	19	18	9	10	14	12	13	18	8	194
Country unknown	234	217	208	456	81	69	48	37	36	55	43	58	91	78	1711
SOCIAL SCIENCES															
Total, foreign citizenship	976	1859	3397	3584	674	734	761	738	833	854	892	893	914	1024	18133
Canada	101	227	421	319	35	48	41	39	44	30	33	32	41	49	1460
Mexico & Central America	6	22	42	54	13	19	15	14	19	13	24	19	15	30	305
Mexico	3	7	27	38	8	10	9	7	16	11	20	14	7	19	196
Cuba & islands	6	32	44	41	12	9	7	4	14	9	9	6	10	7	210
South America	14	83	191	258	53	59	49	33	47	38	63	44	48	48	1028
Argentina	4	25	56	39	2	8	6	7	6	4	10	9	5	6	187
Brazil	3	17	48	104	29	28	16	16	20	16	22	9	13	16	357
Chile	3	15	25	32	5	7	4	2	9	5	11	8	10	8	144
Colombia	1	9	20	31	3	3	6	3	3	2	7	4	11	6	109
Europe	120	257	564	517	76	86	78	80	105	86	90	109	117	115	2400
Belgium	5	13	28	22	6	5	2	-	4	3	2	-	4	3	97
England	46	99	210	170	21	24	20	23	21	18	15	21	28	21	737
France	5	11	38	52	5	7	14	7	10	4	4	9	10	5	181
Fed Rep Ger/Ger Dem Rep(2).	14	28	80	49	4	9	4	10	10	9	6	14	8	15	260
Greece	15	20	45	43	9	16	9	6	11	11	13	15	11	14	238
Italy	4	18	20	22	2	4	5	2	8	11	10	9	21	11	147
East Asia	153	292	564	641	124	118	161	152	183	208	213	229	285	336	3659
Taiwan	-	-	46	106	20	17	26	36	37	56	44	50	61	64	563
China, Peoples Rep of	-	-	-	-	-	-	-	-	1	2	3	9	16	23	54
China, unspecified	40	87	106	20	-	-	-	-	1	-	-	-	-	-	254
Hong Kong	-	2	10	28	8	10	10	3	5	9	4	10	10	13	122
Japan	28	55	115	127	20	23	31	24	26	31	30	33	36	39	618
Korea	53	104	185	167	43	30	46	50	59	70	86	94	113	170	1270
Thailand	21	24	61	121	21	25	32	28	33	27	26	25	29	18	491
West Asia	207	472	793	696	147	161	165	182	203	194	199	185	170	180	3954
India	99	212	283	212	30	31	29	38	27	44	40	56	42	39	1182
Iran	14	29	72	112	26	38	35	53	59	49	44	29	34	25	619
Iraq	14	28	23	13	2	-	4	2	2	9	1	5	3	2	108
Israel	22	51	128	99	19	21	24	23	20	12	14	10	9	10	462
Lebanon	12	22	25	26	7	5	5	4	4	4	6	5	7	5	137
Turkey	2	14	78	71	8	8	5	5	11	9	12	13	13	10	259
Pakistan	29	65	69	35	8	7	9	9	15	9	16	14	8	13	306
Australasia	64	93	181	183	42	40	45	57	33	41	45	45	36	37	942
Australia	20	25	73	71	15	14	13	13	7	10	11	13	11	6	302
Indonesia, Republic of	10	26	13	33	10	12	13	17	12	12	14	19	13	16	220
New Zealand	9	10	28	30	8	3	2	6	1	3	3	3	1	8	115
Philippines	25	32	66	49	9	11	17	21	13	15	17	10	11	6	302
Africa	58	157	350	393	78	100	111	124	116	143	126	114	101	106	2077
Egypt	37	81	78	24	7	13	11	13	10	13	17	12	13	13	342
Nigeria	-	-	44	134	18	37	31	34	25	42	29	35	27	19	475
Country unknown	247	224	247	482	94	94	89	53	69	92	90	110	91	116	2098

See footnotes at end of table.

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Table 6. Country of citizenship of non-U.S. citizens awarded science and engineering doctorates by major field(1): 1960-89--continued

	Year of doctorate														
Country of citizenship	1960-1964	1965-1969	1970-1974	1975-1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1960-1989
PSYCHOLOGY															
Total, foreign citizenship ...	231	328	610	636	121	127	112	143	139	140	146	144	144	155	3176
Canada	63	94	203	156	22	29	15	24	29	21	28	20	24	23	751
Mexico & Central America	2	3	9	12	3	5	1	10	8	4	6	7	5	5	80
Mexico	1	2	7	7	3	5	1	6	4	3	3	4	3	4	53
Cuba & islands	-	4	5	15	1	2	3	-	2	3	6	1	2	3	47
South America	3	15	24	36	7	9	6	11	10	8	9	9	4	10	161
Argentina	2	3	8	3	-	-	-	2	-	-	4	-	1	-	23
Brazil	-	6	4	10	2	2	2	2	2	2	1	4	-	6	43
Chile	-	3	6	4	-	2	-	2	1	-	2	1	-	1	22
Colombia	-	2	3	5	3	2	-	1	2	2	-	2	2	1	25
Europe	31	50	100	90	22	19	17	27	22	30	29	32	32	33	534
Belgium	-	-	1	2	-	3	1	1	-	-	1	-	1	1	11
England	14	18	37	43	6	8	5	8	8	11	5	5	9	5	182
France	-	1	3	4	1	-	-	-	2	-	-	1	-	2	14
Fed Rep Ger/Ger Dem Rep(2).	5	10	23	12	3	2	4	7	3	7	6	6	9	8	105
Greece	3	2	4	3	3	1	1	4	1	1	-	3	2	4	32
Italy	1	2	5	1	2	-	1	-	1	-	2	4	2	3	24
East Asia	17	24	46	44	10	6	7	25	17	17	19	15	27	34	308
Taiwan	-	-	8	10	4	4	4	9	4	7	10	5	6	12	83
China, Peoples Rep of	-	-	-	-	-	-	-	-	-	-	-	1	1	-	2
China, unspecified	4	9	23	2	-	-	-	-	-	-	-	-	-	-	38
Hong Kong	-	1	1	9	2	1	-	2	5	2	2	-	2	4	31
Japan	8	9	3	6	2	-	-	9	3	4	3	2	6	8	63
Korea	2	2	5	13	1	1	2	3	3	1	3	3	6	8	53
Thailand	1	1	4	3	1	-	-	1	2	-	1	2	2	1	19
West Asia	39	63	129	109	27	25	25	26	24	26	18	26	13	16	566
India	18	17	33	11	2	3	3	5	4	2	4	8	1	5	116
Iran	3	4	16	22	14	8	9	6	9	8	3	2	1	1	106
Iraq	1	2	-	-	-	1	-	1	-	-	-	1	-	-	6
Israel	6	30	55	51	5	10	10	11	10	11	9	6	9	6	229
Lebanon	-	1	3	3	1	-	-	-	-	-	-	-	1	-	9
Turkey	3	5	11	13	3	1	2	2	1	1	1	5	-	1	49
Pakistan	5	4	5	4	1	1	1	-	-	-	1	1	-	1	24
Australasia	10	17	29	41	1	6	3	6	13	4	4	2	7	7	150
Australia	5	8	14	18	-	2	1	3	7	3	2	1	6	5	75
Indonesia, Republic of	-	-	2	1	-	-	-	1	1	-	1	-	-	1	7
New Zealand	2	3	2	4	1	-	-	2	3	-	1	-	1	1	20
Philippines	3	6	11	18	-	4	2	-	2	1	-	-	-	-	47
Africa	9	13	26	23	6	2	13	4	4	5	4	9	6	3	127
Egypt	5	8	2	2	1	-	2	2	-	-	-	2	-	-	24
Nigeria	-	-	6	10	2	-	4	1	3	2	1	2	-	2	33
Country unknown	57	45	39	110	22	24	22	10	10	22	23	23	24	21	452
TOTAL, ENGINEERING(3)															
Total, foreign citizenship ...	1326	3155	5524	5783	1150	1243	1326	1489	1543	1734	1715	1887	2089	2285	32249
Canada	97	240	191	87	20	17	18	23	22	22	18	29	28	38	850
Mexico & Central America	9	36	53	86	17	24	17	34	22	27	25	27	33	33	443
Mexico	7	26	47	74	13	21	13	29	19	24	20	21	27	28	369
Cuba & islands	3	19	21	14	2	-	3	9	5	7	6	6	2	5	102
South America	24	91	206	278	52	74	65	76	62	53	63	79	69	73	1265
Argentina	-	8	16	21	10	6	5	8	10	11	10	9	6	6	126
Brazil	10	30	81	115	24	36	29	26	27	15	17	38	25	30	503
Chile	4	17	31	30	3	10	7	11	2	6	8	10	9	9	157
Colombia	3	12	35	36	3	3	4	5	11	4	4	7	9	5	141
Europe	159	346	689	515	88	103	113	120	109	111	148	152	171	193	3017
Belgium	7	20	43	29	4	5	7	7	6	9	4	6	6	5	158
England	35	79	113	63	19	16	16	10	12	6	12	9	11	14	415
France	16	35	96	64	6	8	12	14	17	11	13	16	22	18	348
Fed Rep Ger/Ger Dem Rep(2).	11	37	74	35	5	8	6	3	2	7	10	7	11	16	232
Greece	19	48	98	109	22	28	23	32	35	30	49	61	58	67	679
Italy	7	13	29	10	2	2	5	7	10	7	8	10	7	14	131
East Asia	310	958	1676	1571	304	362	422	481	582	666	682	803	889	976	10682
Taiwan	-	-	307	748	172	218	257	277	322	387	351	398	400	421	4258
China, Peoples Rep of	-	-	-	-	1	-	-	5	27	48	55	84	133	152	505
China, unspecified	221	729	808	115	-	1	2	-	-	-	2	3	1	8	1890
Hong Kong	-	12	46	142	29	29	32	30	30	28	27	22	33	38	498
Japan	39	72	200	140	27	31	31	31	38	25	28	15	24	19	720
Korea	36	114	230	250	41	50	63	104	115	133	175	238	257	307	2113
Thailand	8	22	40	140	20	23	25	27	36	25	26	20	24	16	452
West Asia	340	871	1861	1860	357	372	412	491	464	514	470	477	533	571	9593
India	203	529	1249	1040	184	176	160	178	194	212	204	204	255	251	5039
Iran	26	60	170	258	79	74	99	138	119	116	100	88	81	108	1516
Iraq	10	31	41	24	6	4	4	7	6	6	4	10	8	9	170
Israel	51	90	102	137	21	33	25	45	22	22	24	19	23	19	633
Lebanon	2	20	31	33	6	8	8	13	15	11	11	27	18	24	227
Turkey	23	73	155	194	31	30	43	36	41	56	49	43	42	52	868
Pakistan	9	41	50	47	8	8	13	13	10	18	23	17	20	15	292
Australasia	30	77	116	68	14	11	21	23	29	28	21	24	24	26	512
Australia	12	26	49	20	4	4	4	8	5	4	6	5	2	2	151
Indonesia, Republic of	7	10	16	18	4	4	7	9	11	15	9	13	11	12	146
New Zealand	-	11	13	7	4	-	6	-	4	4	1	2	4	3	59
Philippines	11	30	38	23	2	3	4	6	9	5	5	4	7	9	156
Africa	50	149	305	310	96	104	98	125	139	137	118	107	138	138	2014
Egypt	39	106	172	121	39	41	38	43	45	48	53	40	47	49	881
Nigeria	-	-	16	75	20	31	16	29	30	29	15	16	21	11	309
Country unknown	304	368	406	994	200	176	157	107	109	169	164	183	202	232	3771

See footnotes at end of table.

Table 6. Country of citizenship of non-U.S. citizens awarded science and engineering doctorates by major field(1): 1960-89--continued

	Year of doctorate														
Country of citizenship	1960-1964	1965-1969	1970-1974	1975-1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1960-1989
CHEMICAL ENGINEERING															
Total, foreign citizenship	216	386	725	741	153	155	151	176	178	211	226	230	253	243	4044
Canada	19	27	20	8	3	3	2	3	1	2	1	1	2	3	95
Mexico & Central America	-	3	8	20	2	3	1	7	2	5	4	3	4	8	70
Mexico	-	1	7	16	2	2	1	7	1	5	3	2	4	8	59
Cuba & islands	-	6	3	1	-	-	-	-	-	1	1	1	-	-	13
South America	8	10	30	35	5	8	5	14	12	8	3	11	10	10	169
Argentina	-	1	3	8	3	2	1	5	5	4	1	4	4	1	42
Brazil	1	5	8	6	-	1	1	1	1	-	-	2	1	4	31
Chile	2	1	2	5	-	2	1	4	-	1	1	4	2	1	26
Colombia	3	2	9	7	-	1	-	1	2	2	-	-	1	1	29
Europe	19	31	54	59	12	11	11	6	14	12	23	29	17	29	327
Belgium	-	-	-	1	-	-	-	-	-	-	-	-	-	1	2
England	10	10	9	10	4	1	-	-	1	-	3	5	3	3	59
France	1	3	8	7	-	-	1	-	2	1	1	3	-	2	29
Fed Rep Ger/Ger Dem Rep(2)	1	1	3	1	1	1	-	-	-	-	-	1	-	1	10
Greece	1	9	13	18	3	3	7	5	7	7	15	12	11	19	130
Italy	1	-	-	-	1	-	-	1	1	1	-	2	-	-	7
East Asia	57	146	263	219	54	48	54	61	70	84	83	108	120	98	1465
Taiwan	-	-	42	129	36	28	36	39	49	55	56	72	75	54	671
China, Peoples Rep of	-	-	-	-	-	-	-	-	-	3	2	1	5	14	25
China, unspecified	39	99	116	15	-	-	-	-	-	-	-	-	-	-	269
Hong Kong	-	-	6	14	7	5	5	4	5	4	4	4	4	5	67
Japan	3	7	22	11	1	3	2	2	1	-	1	3	-	-	56
Korea	15	39	66	40	7	8	9	11	14	16	17	22	32	24	320
Thailand	-	1	2	8	2	2	1	5	1	5	1	2	2	1	33
West Asia	54	92	234	235	46	51	41	67	53	78	78	50	68	64	1211
India	34	59	171	145	31	28	23	37	36	50	60	40	52	40	806
Iran	7	7	20	20	4	9	6	10	6	2	2	2	4	7	106
Iraq	2	1	3	-	-	-	-	-	1	-	1	-	1	1	10
Israel	6	17	10	14	2	3	-	1	-	3	1	1	1	-	59
Lebanon	-	-	-	-	1	-	1	1	-	3	-	1	-	1	8
Turkey	2	4	23	38	3	6	6	6	4	8	6	3	3	3	115
Pakistan	1	3	2	4	2	-	1	1	1	1	1	-	1	-	18
Australasia	4	10	21	6	1	1	1	1	2	1	2	2	3	4	59
Australia	1	3	7	1	-	-	-	1	-	-	-	-	-	-	13
Indonesia, Republic of	1	1	3	2	-	-	1	-	1	-	1	1	-	2	13
New Zealand	-	-	-	-	1	-	-	-	-	-	-	-	1	1	3
Philippines	2	6	11	3	-	1	-	-	1	1	1	1	2	1	30
Africa	2	13	35	21	8	3	9	8	11	5	7	4	12	10	148
Egypt	2	10	12	6	-	1	-	1	-	-	2	1	2	2	39
Nigeria	-	-	2	2	4	1	4	3	6	-	1	1	1	2	27
Country unknown	53	48	57	137	22	27	27	9	13	15	24	21	17	17	487
CIVIL ENGINEERING															
Total, foreign citizenship	229	538	840	742	136	169	185	217	207	230	234	256	294	302	4579
Canada	12	51	41	12	2	-	2	4	3	3	3	2	7	5	147
Mexico & Central America	4	15	7	10	4	4	2	3	3	6	6	5	8	4	81
Mexico	3	10	5	7	3	3	1	2	1	4	2	2	4	3	50
Cuba & islands	1	3	3	4	1	-	1	3	1	-	2	3	-	-	22
South America	4	22	38	47	4	11	11	9	8	4	11	13	18	13	213
Argentina	-	4	2	2	-	-	-	-	1	-	1	-	2	1	13
Brazil	2	1	4	12	1	5	5	4	4	-	1	7	5	3	54
Chile	-	4	12	6	1	1	1	-	-	1	1	1	1	3	32
Colombia	-	4	12	7	-	-	1	-	2	1	3	3	3	2	38
Europe	26	37	103	65	9	21	20	23	13	16	25	23	26	31	438
Belgium	-	-	3	1	-	1	-	1	-	-	2	1	-	-	9
England	2	10	17	7	2	1	2	2	1	1	2	2	3	1	53
France	2	3	9	6	1	4	2	2	2	-	-	4	2	2	39
Fed Rep Ger/Ger Dem Rep(2)	3	3	15	3	-	1	2	-	-	-	-	-	-	-	27
Greece	3	3	11	18	2	8	5	4	4	5	10	9	11	12	105
Italy	-	3	1	1	-	-	-	1	1	3	-	-	-	4	14
East Asia	39	91	206	182	24	38	54	49	69	76	84	81	107	91	1191
Taiwan	-	-	35	72	8	19	34	33	38	49	53	48	58	47	494
China, Peoples Rep of	-	-	-	-	-	-	-	-	2	2	3	4	12	5	28
China, unspecified	28	75	99	11	-	-	-	-	-	-	-	-	1	-	214
Hong Kong	-	2	6	6	1	1	5	3	3	3	3	-	1	4	38
Japan	4	4	27	22	4	4	5	1	3	5	6	5	3	7	100
Korea	2	6	11	9	3	6	2	4	9	8	11	11	22	21	125
Thailand	4	3	18	61	5	7	7	6	12	5	3	5	6	3	145
West Asia	71	202	318	223	42	53	46	77	53	66	50	73	82	84	1440
India	41	110	157	76	7	10	6	12	9	14	6	11	22	15	496
Iran	5	22	31	32	16	9	17	31	16	24	18	18	21	19	279
Iraq	4	13	22	10	3	1	1	1	4	4	1	4	1	2	71
Israel	7	6	10	11	-	4	1	2	2	1	1	-	1	3	49
Lebanon	1	7	14	10	1	3	2	3	3	1	3	10	3	8	69
Turkey	6	16	36	33	6	5	1	5	3	2	4	1	3	-	121
Pakistan	1	16	19	9	1	3	1	2	-	3	1	-	3	2	61
Australasia	10	16	21	16	1	-	6	8	8	8	7	9	5	6	121
Australia	7	5	13	3	-	-	-	-	2	1	2	2	1	-	36
Indonesia, Republic of	1	-	1	4	-	-	1	5	4	4	3	4	2	3	32
New Zealand	-	4	3	6	1	-	4	-	1	2	1	1	1	2	26
Philippines	2	7	4	3	-	-	1	3	1	1	1	2	1	1	27
Africa	17	45	43	58	26	19	29	26	30	26	23	23	22	33	420
Egypt	14	30	17	22	10	9	12	8	12	9	8	4	9	17	181
Nigeria	-	-	1	10	2	3	3	5	4	6	4	6	2	2	48
Country unknown	45	56	60	125	23	23	14	15	19	25	23	24	19	35	506

See footnotes at end of table.

Table 6. Country of citizenship of non-U.S. citizens awarded science and engineering doctorates by major field(1): 1960-89--continued

Country of citizenship	Year of doctorate 1960-1964	1965-1969	1970-1974	1975-1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1960-1989
ELECTRICAL ENGINEERING															
Total, foreign citizenship ...	323	732	1118	1124	191	207	269	270	307	339	345	324	444	505	6498
Canada ...	29	71	27	15	1	5	2	-	2	4	5	6	5	11	183
Mexico & Central America ...	1	6	6	17	1	5	2	4	4	6	1	2	6	3	64
Mexico ...	1	5	6	16	-	4	2	3	4	6	1	1	6	3	58
Cuba & islands ...	-	1	4	3	-	-	-	-	-	2	1	1	-	1	13
South America ...	7	21	41	53	7	4	9	6	12	5	7	9	6	14	201
Argentina ...	-	1	3	3	1	-	1	1	2	2	1	-	-	2	17
Brazil ...	6	10	25	26	4	2	5	1	5	-	1	5	1	5	96
Chile ...	1	4	3	3	-	-	-	-	1	-	3	-	1	2	18
Colombia ...	-	3	4	4	1	-	-	1	1	-	-	1	-	2	17
Europe ...	47	97	163	101	18	20	24	21	22	23	31	30	36	53	686
Belgium ...	3	8	15	7	3	1	3	1	1	3	1	3	2	1	52
England ...	7	16	22	11	2	3	3	-	3	1	1	1	1	5	76
France ...	5	13	21	9	1	1	3	2	2	1	2	2	7	6	75
Fed Rep Ger/Ger Dem Rep(2).	4	6	19	9	-	3	-	-	-	-	1	2	4	5	53
Greece ...	7	15	30	23	6	5	6	4	4	6	10	10	10	14	150
Italy ...	2	6	7	2	1	1	-	1	5	3	4	2	3	3	40
East Asia ...	78	234	357	363	59	74	89	90	121	115	130	131	199	211	2251
Taiwan ...	-	-	69	166	36	47	59	57	68	71	66	55	81	89	864
China, Peoples Rep of ...	-	-	-	-	1	-	-	2	6	13	13	23	37	41	136
China, unspecified ...	58	176	174	31	-	-	-	-	-	-	2	-	-	2	443
Hong Kong ...	-	5	16	54	6	10	10	6	10	8	4	8	15	15	167
Japan ...	11	20	39	21	4	3	6	1	8	3	5	-	4	6	131
Korea ...	5	22	41	53	6	8	9	20	20	16	33	40	52	56	381
Thailand ...	1	9	11	25	2	4	4	4	5	1	4	1	6	-	77
West Asia ...	81	171	362	320	59	63	101	97	95	115	97	92	112	111	1876
India ...	57	101	238	170	37	35	37	33	35	44	34	29	34	40	924
Iran ...	3	13	41	57	11	12	20	23	31	31	28	23	26	30	349
Iraq ...	-	5	5	5	-	-	-	1	-	-	-	1	4	-	21
Israel ...	12	21	23	34	4	10	12	14	6	6	3	4	8	2	159
Lebanon ...	-	5	9	7	-	1	2	4	3	1	4	7	9	9	61
Turkey ...	4	16	33	22	2	1	9	8	6	14	10	15	12	11	163
Pakistan ...	2	5	4	6	2	1	8	4	4	3	6	3	4	3	55
Australasia ...	5	14	17	15	-	-	1	4	3	5	5	3	7	7	86
Australia ...	1	8	9	5	-	-	1	1	1	2	2	2	-	1	33
Indonesia, Republic of ...	3	2	3	2	-	-	-	1	1	3	3	1	6	3	28
New Zealand ...	-	2	3	-	-	-	-	-	-	-	-	-	1	-	6
Philippines ...	1	2	2	8	-	-	-	2	1	-	-	-	-	3	19
Africa ...	7	17	57	49	15	12	10	25	30	29	31	15	26	31	354
Egypt ...	7	14	34	20	8	6	3	15	12	14	14	5	8	7	167
Nigeria ...	-	-	2	13	1	3	2	2	2	2	2	2	1	2	34
Country unknown ...	68	100	84	188	31	24	31	23	18	35	37	35	47	63	784
MATERIALS SCIENCE															
Total, foreign citizenship ...	-	3	164	276	71	53	67	74	91	92	94	118	118	114	1335
Canada ...	-	1	2	5	-	-	1	2	-	2	1	3	1	1	19
Mexico & Central America ...	-	-	4	5	2	1	1	4	-	1	2	1	-	-	21
Mexico ...	-	-	4	4	2	1	-	3	-	1	2	1	-	-	18
Cuba & islands ...	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
South America ...	-	-	3	11	1	3	3	4	3	4	6	4	1	-	43
Argentina ...	-	-	-	2	1	1	-	-	-	1	1	-	-	-	6
Brazil ...	-	-	2	4	-	1	1	-	1	2	-	2	-	-	13
Chile ...	-	-	-	2	-	1	-	1	-	-	2	-	1	-	7
Colombia ...	-	-	-	-	-	-	-	1	-	-	1	-	-	-	2
Europe ...	-	-	19	14	7	7	4	5	2	4	4	6	8	2	82
Belgium ...	-	-	3	2	-	-	-	-	1	-	-	-	-	-	6
England ...	-	-	3	2	2	3	1	2	-	1	-	-	1	-	15
France ...	-	-	4	1	3	1	1	1	1	-	2	2	4	1	21
Fed Rep Ger/Ger Dem Rep(2).	-	-	-	4	-	-	-	-	-	1	-	-	1	-	6
Greece ...	-	-	2	2	-	1	-	1	-	-	-	2	-	-	8
Italy ...	-	-	-	-	-	1	-	-	-	-	-	1	-	-	2
East Asia ...	-	2	61	92	25	17	27	36	53	44	52	69	58	77	613
Taiwan ...	-	-	13	46	19	11	18	25	28	22	24	27	26	26	285
China, Peoples Rep of ...	-	-	-	-	-	-	-	-	7	4	6	9	8	15	49
China, unspecified ...	-	1	18	6	-	-	-	-	-	-	-	1	-	-	26
Hong Kong ...	-	-	1	4	2	2	-	-	1	-	1	2	3	2	18
Japan ...	-	-	14	16	1	2	2	6	2	5	3	2	2	2	57
Korea ...	-	1	12	19	3	2	6	5	14	11	14	27	17	32	163
Thailand ...	-	-	-	1	-	-	-	-	-	2	2	1	-	-	6
West Asia ...	-	-	51	83	18	15	18	15	17	25	20	21	30	19	332
India ...	-	-	46	67	13	12	10	13	13	22	13	14	20	16	259
Iran ...	-	-	2	6	2	2	6	2	2	-	1	-	2	-	25
Iraq ...	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Israel ...	-	-	2	4	2	-	-	-	1	-	3	1	-	-	13
Lebanon ...	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1
Turkey ...	-	-	1	4	1	-	2	-	-	3	1	3	4	2	21
Pakistan ...	-	-	-	2	-	-	-	-	-	-	-	2	3	1	8
Australasia ...	-	-	3	1	1	-	1	1	-	-	-	1	-	-	8
Australia ...	-	-	2	-	-	-	-	1	-	-	-	-	-	-	3
Indonesia, Republic of ...	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1
New Zealand ...	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
Philippines ...	-	-	1	1	-	-	-	-	-	-	-	1	-	-	3
Africa ...	-	-	8	7	2	1	1	2	9	3	3	5	8	4	53
Egypt ...	-	-	6	3	-	1	1	1	3	3	2	2	3	-	25
Nigeria ...	-	-	1	3	1	-	-	1	3	-	-	3	3	1	16
Country unknown ...	-	-	13	58	15	9	11	5	7	9	6	8	12	11	164

See footnotes at end of table.

Table 6. Country of citizenship of non-U.S. citizens awarded science and engineering doctorates by major field(1): 1960-89--continued

	Year of doctorate														
Country of citizenship	1960-1964	1965-1969	1970-1974	1975-1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1960-1989
MECHANICAL ENGINEERING															
Total, foreign citizenship ...	256	630	960	874	189	188	225	220	244	297	289	370	404	420	5566
Canada	10	42	31	14	2	1	2	1	1	3	2	6	2	7	124
Mexico & Central America	2	5	5	6	2	3	3	1	2	-	5	6	3	4	47
Mexico	1	4	5	6	2	3	1	-	2	-	5	5	2	3	39
Cuba & islands	-	3	5	2	-	-	-	2	2	-	-	-	1	-	15
South America	3	14	15	19	6	5	9	10	7	4	11	6	10	8	127
Argentina	-	1	2	1	2	-	1	-	2	1	3	2	-	-	15
Brazil	-	8	9	11	3	2	3	4	4	2	3	3	4	3	59
Chile	-	2	2	-	-	-	3	1	-	-	-	1	1	1	11
Colombia	-	-	1	1	-	-	1	1	-	-	-	-	2	-	6
Europe	24	55	89	61	12	9	20	16	14	17	25	27	33	28	430
Belgium	1	4	5	1	-	-	1	-	2	1	1	1	1	1	19
England	5	20	14	9	2	2	4	1	3	2	1	-	2	1	66
France	2	2	13	4	1	1	3	1	2	4	4	2	5	5	49
Fed Rep Ger/Ger Dem Rep(2).	-	11	9	3	1	-	1	-	-	1	4	2	2	3	37
Greece	3	3	9	16	1	2	1	5	5	3	4	12	11	9	84
Italy	1	1	5	3	-	-	3	2	-	-	-	2	1	1	19
East Asia	77	236	351	234	47	62	67	80	99	129	115	168	188	189	2042
Taiwan	-	-	69	114	23	32	40	40	56	76	54	85	87	78	754
China, Peoples Rep of	-	-	-	-	-	-	-	3	3	12	14	17	36	28	113
China, unspecified	64	210	192	24	-	-	-	-	-	-	-	-	-	3	493
Hong Kong	-	1	10	17	3	5	5	4	3	5	7	2	2	6	70
Japan	7	7	23	16	5	7	5	5	6	4	3	2	9	1	100
Korea	4	15	47	41	10	11	10	23	24	21	32	52	50	68	408
Thailand	-	2	1	15	4	4	5	3	5	5	4	8	3	3	62
West Asia	65	164	322	333	66	56	75	78	84	85	78	97	100	118	1721
India	36	95	223	201	35	27	28	24	29	33	30	43	53	54	911
Iran	6	10	32	57	15	12	17	22	28	23	23	23	18	25	311
Iraq	2	8	6	1	-	1	1	2	-	-	1	1	1	1	25
Israel	10	13	15	11	3	6	3	8	1	3	3	4	3	5	88
Lebanon	-	5	4	2	-	2	1	3	4	4	3	5	2	2	37
Turkey	7	22	28	34	10	3	13	6	14	11	9	7	8	10	182
Pakistan	1	6	6	8	1	-	1	2	-	2	5	3	2	2	39
Australasia	1	11	14	4	1	4	1	2	5	4	3	1	2	5	58
Australia	1	5	5	1	-	2	-	1	-	-	2	-	1	1	19
Indonesia, Republic of	-	2	2	3	-	2	-	1	4	3	1	-	1	3	22
New Zealand	-	2	2	-	1	-	1	-	1	-	-	1	-	-	8
Philippines	-	2	5	-	-	-	-	-	-	1	-	-	-	1	9
Africa	9	25	51	56	18	21	18	13	17	25	27	18	18	19	335
Egypt	4	15	30	28	8	8	10	8	8	11	13	11	9	10	173
Nigeria	-	-	4	14	5	5	1	3	2	9	4	-	2	1	50
Country unknown	65	75	77	145	35	27	30	17	13	30	23	41	47	42	667
TOTAL, NON-SCIENCE & ENGINEERING(4)															
Total, foreign citizenship ...	1398	2858	5117	6056	1272	1366	1451	1476	1529	1596	1580	1652	1762	1756	30869
Canada	247	595	1088	838	146	124	140	155	158	135	118	136	150	140	4170
Mexico & Central America	5	27	37	75	14	14	26	24	27	31	31	22	24	25	382
Mexico	2	8	17	44	10	10	16	12	21	20	23	17	15	16	231
Cuba & islands	4	45	93	103	21	24	17	25	37	20	18	24	21	30	482
South America	19	66	194	315	80	81	86	90	70	88	92	71	65	66	1383
Argentina	6	18	36	38	4	2	4	12	6	8	9	5	10	8	166
Brazil	5	16	26	104	33	41	41	31	30	32	31	27	23	23	463
Chile	2	8	27	43	13	7	11	8	10	7	12	10	3	6	167
Colombia	-	6	45	44	7	4	6	10	5	7	7	7	7	10	165
Europe	174	471	1010	860	142	158	157	163	180	200	178	216	226	232	4367
Belgium	3	11	29	22	5	6	4	3	3	9	4	10	12	6	127
England	76	189	354	260	39	44	57	50	47	59	45	62	59	60	1401
France	8	37	130	111	16	21	16	27	26	18	16	21	25	18	490
Fed Rep Ger/Ger Dem Rep(2).	28	86	184	142	24	18	15	22	27	32	32	35	31	35	711
Greece	12	29	36	38	9	11	12	8	6	12	8	7	12	10	210
Italy	3	16	32	39	4	5	9	10	4	10	10	13	14	21	190
East Asia	132	278	569	824	177	160	202	263	268	299	329	362	480	501	4844
Taiwan	-	-	49	122	32	30	52	63	63	88	87	83	127	120	916
China, Peoples Rep of	-	-	-	-	1	2	2	2	1	2	6	13	19	35	83
China, unspecified	41	83	140	46	1	-	-	-	-	-	-	-	-	1	312
Hong Kong	1	4	20	48	16	15	14	22	14	13	17	24	15	23	246
Japan	34	62	71	77	23	15	18	22	36	26	31	20	39	40	514
Korea	26	75	139	186	27	36	45	61	59	69	95	133	170	180	1301
Thailand	22	27	93	260	63	47	48	75	74	72	63	64	74	57	1039
West Asia	257	554	933	1012	220	288	286	301	334	320	328	332	330	297	5792
India	125	247	385	322	49	66	54	70	82	83	110	99	127	143	1962
Iran	14	23	78	176	68	86	71	61	60	65	45	36	30	21	834
Iraq	14	19	32	22	5	12	7	13	21	18	13	12	9	6	203
Israel	23	86	167	172	29	36	37	35	38	14	33	38	21	28	757
Lebanon	12	20	33	28	4	4	9	10	3	11	12	9	10	4	169
Turkey	14	20	47	61	12	9	12	7	15	10	17	11	10	10	255
Pakistan	32	93	70	41	9	6	5	6	10	11	8	10	14	9	324
Australasia	134	206	395	378	66	98	70	87	77	76	69	72	82	75	1885
Australia	35	76	177	209	47	53	39	47	42	38	33	34	32	37	899
Indonesia, Republic of	9	11	28	23	8	13	10	18	10	13	17	19	34	20	233
New Zealand	12	20	52	49	5	6	9	6	9	5	5	7	10	5	200
Philippines	78	99	135	93	6	23	12	16	15	17	14	12	5	11	536
Africa	101	234	414	693	207	217	249	229	253	257	212	202	190	181	3639
Egypt	82	122	106	67	44	35	43	40	37	32	26	33	30	19	716
Nigeria	-	-	50	297	70	92	104	102	114	107	97	67	68	58	1226
Country unknown	325	382	384	958	199	202	218	139	125	170	205	215	194	209	3925

See footnotes at end of table.

Table 6. Country of citizenship of non-U.S. citizens awarded science and engineering doctorates by major field(1): 1960-89--continued

Country of citizenship	Year of doctorate 1960-1964	1965-1969	1970-1974	1975-1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1960-1989
TOTAL, ALL FIELDS															
Total, foreign citizenship ...	7536	14664	24026	24761	4935	5221	5432	5774	6056	6553	6708	7188	7810	8195	134859
Canada	965	1833	2703	1816	301	282	288	334	331	287	295	317	353	358	10463
Mexico & Central America	90	216	289	423	85	111	115	150	132	151	153	136	148	176	2375
Mexico	58	138	199	299	67	85	86	108	97	121	120	103	107	134	1722
Cuba & islands	25	158	228	232	42	47	37	47	69	52	47	47	49	59	1139
South America	155	499	1214	1576	348	373	326	359	346	342	392	382	359	354	7025
Argentina	28	95	249	156	29	29	28	46	47	40	49	33	48	49	926
Brazil	34	120	283	585	156	176	134	132	138	115	127	139	117	121	2377
Chile	33	89	183	236	39	41	39	43	41	48	56	55	48	51	1002
Colombia	21	64	188	189	29	23	33	35	37	29	31	34	53	36	802
Europe	893	1866	3587	2966	501	563	574	617	646	691	737	839	915	927	16322
Belgium	23	71	157	100	16	26	19	18	20	28	24	26	33	21	582
England	309	639	1092	801	126	144	147	137	147	162	121	156	175	155	4311
France	41	124	363	303	32	46	56	60	74	46	50	69	78	69	1411
Fed Rep Ger/Ger Dem Rep(2).	104	248	471	311	51	53	51	65	66	80	93	109	108	134	1944
Greece	100	199	298	340	72	75	72	74	84	80	111	130	130	141	1906
Italy	30	71	135	117	19	22	32	40	39	55	58	59	77	75	829
East Asia	1134	2977	5499	5524	1025	1046	1269	1454	1616	1852	1989	2330	2717	3033	33465
Taiwan	-	-	905	2137	455	474	612	667	727	831	794	870	913	962	10347
China, Peoples Rep of	-	-	-	-	3	2	5	15	61	139	204	303	497	641	1870
China, unspecified	556	1804	2279	399	4	1	3	-	2	3	2	9	5	15	5082
Hong Kong	4	67	260	532	108	115	106	120	101	107	90	111	96	116	1933
Japan	225	342	584	512	92	92	106	125	138	123	139	103	142	144	2867
Korea	222	511	866	889	158	171	217	297	325	392	493	680	790	926	6937
Thailand	81	133	331	729	139	130	140	163	182	168	171	159	170	132	2828
West Asia	1801	3656	5892	5359	1125	1214	1301	1442	1514	1508	1534	1554	1556	1582	31038
India	1122	2104	3252	2467	420	445	411	453	519	541	579	602	647	676	14238
Iran	90	218	502	773	273	280	318	339	347	298	258	218	202	215	4331
Iraq	88	168	191	107	32	39	33	56	47	59	40	55	45	30	990
Israel	159	378	607	606	95	130	119	144	116	80	112	104	82	93	2825
Lebanon	46	105	138	139	23	23	30	34	31	37	40	52	49	53	800
Turkey	57	143	387	435	77	58	80	75	87	94	101	97	91	88	1870
Pakistan	132	339	347	200	51	32	48	44	47	57	67	69	66	70	1569
Australasia	411	784	1233	972	186	227	216	246	234	223	217	207	237	238	5631
Australia	138	260	485	396	92	89	85	97	93	77	67	76	71	77	2103
Indonesia, Republic of	44	95	122	137	28	52	44	65	47	55	57	61	76	72	955
New Zealand	49	108	164	139	29	20	28	24	25	24	22	21	27	31	711
Philippines	180	320	457	296	36	63	59	60	66	62	71	47	61	55	1833
Africa	351	992	1602	1905	526	600	640	655	705	758	660	607	639	618	11258
Egypt	234	612	512	286	118	114	126	133	127	139	126	131	145	127	2930
Nigeria	-	-	163	651	158	221	202	208	208	224	176	156	155	113	2635
Country unknown	1711	1683	1779	3988	796	758	666	470	463	689	684	769	837	850	16143

NOTE: Totals for the regions of the world include other countries not shown separately. See Technical Notes for groupings of countries into regions.

(1) Includes non-U.S. citizens on both permanent and temporary visas.

(2) Respondents reported that "Germany" was their country of citizenship without distinguishing between the German Democratic Republic and the Federal Republic of Germany. Most of the respondents probably are citizens of the Federal Republic of Germany.

(3) Subtotal includes engineering fields not separately shown.

(4) Non-science/engineering doctorates in this table include doctorates whose field of specialization is unclassified.

SOURCE: Survey of Earned Doctorates

Table 7. Field-switching between baccalaureate and doctoral degrees by major field: selected years

Field of baccalaureate	Field of doctorate																	
	Total sci & eng	Physical Sciences			Earth atmos & mar	Math	Comp/ info sci	Agric & Biol Sci			Soc sci	Psych	Engineering(1)				Non-sci & eng(2)	Total all flds
		Sub-total	Phys& astr	Chem-istry				Sub-total	Agri sci	Biol sci			Sub-total	Chem	Elec	Mech		
Year of doctorate - 1975																		
Total, sci/eng	16122	2878	1235	1643	589	1043	-	3887	843	3044	2634	2230	2861	352	588	472	3091	19213
Physical sciences .	3727	2636	1067	1569	124	54	-	633	36	597	38	29	213	14	30	18	260	3987
Physics/astronomy	1478	1068	1053	15	69	47	-	80	4	76	23	14	177	-	30	17	99	1577
Chemistry	2249	1568	14	1554	55	7	-	553	32	521	15	15	36	14	-	1	161	2410
Earth/atmos/mar sci	344	3	3	-	307	-	-	14	4	10	8	1	11	-	-	-	29	373
Mathematics	1319	66	60	6	22	883	-	54	7	47	136	54	104	3	13	7	382	1701
Computer/info sci .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Agric & biol sci ..	3338	32	1	31	66	2	-	3046	770	2276	105	60	27	-	-	-	421	3759
Agricultural sci.	909	5	-	5	10	1	-	801	629	172	74	2	16	-	-	-	72	981
Biological sci ..	2429	27	1	26	56	1	-	2245	141	2104	31	58	11	-	-	-	349	2778
Social sciences ...	2393	2	1	1	7	8	-	29	6	23	2179	158	10	-	-	-	1065	3458
Psychology	2040	2	1	1	-	4	-	46	2	44	92	1892	4	-	-	-	685	2725
Total, engineering(1)	2961	137	102	35	63	92	-	65	18	47	76	36	2492	335	545	447	249	3210
Chemical	440	36	5	31	8	2	-	15	2	13	5	4	370	318	-	5	18	458
Electrical	838	43	43	-	11	45	-	13	2	11	16	14	696	-	517	5	66	904
Mechanical	565	11	11	-	12	15	-	11	3	8	9	6	501	6	5	331	54	619
Total, non-sci/eng(2)	1773	71	10	61	16	46	-	312	46	266	854	440	34	5	4	3	10536	12309
Unknown	815	127	55	72	20	58	-	203	16	187	210	81	116	13	20	12	614	1429
Total, all fields ...	18710	3076	1300	1776	625	1147	-	4402	905	3497	3698	2751	3011	370	612	487	14241	32951
Year of doctorate - 1980																		
Total, sci/eng	14978	2342	918	1424	583	672	192	4200	816	3384	2288	2386	2315	271	450	363	3103	18081
Physical sciences .	3254	2149	810	1339	137	21	24	618	44	574	21	27	257	27	38	15	218	3472
Physics/astronomy	1267	812	797	15	100	20	21	90	3	87	13	12	199	4	37	15	78	1345
Chemistry	1987	1337	13	1324	37	1	3	528	41	487	8	15	58	23	1	-	140	2127
Earth/atmos/mar sci	355	3	2	1	293	1	-	29	11	18	14	3	12	-	-	4	24	379
Mathematics	1143	42	33	9	35	609	87	77	8	69	130	44	119	-	22	14	308	1451
Computer/info sci .	41	-	-	-	-	-	34	-	-	-	2	-	5	-	2	-	5	46
Agric & biol sci ..	3566	51	3	48	68	6	-	3282	710	2572	68	55	36	2	-	-	449	4015
Agricultural sci.	692	5	-	5	8	1	-	619	500	119	41	2	16	1	-	-	55	747
Biological sci ..	2874	46	3	43	60	5	-	2663	210	2453	27	53	20	1	-	-	394	3268
Social sciences ...	2162	3	3	-	10	14	4	47	20	27	1899	173	12	-	-	-	1080	3242
Psychology	2269	3	2	1	1	1	2	97	6	91	94	2062	9	-	-	-	829	3098
Total, engineering(1)	2188	91	65	26	39	20	41	50	17	33	60	22	1865	242	388	330	190	2378
Chemical	323	29	4	25	2	2	-	10	4	6	2	1	277	231	-	7	14	337
Electrical	580	24	24	-	4	7	26	8	1	7	10	6	495	-	360	2	37	617
Mechanical	414	5	5	-	8	1	4	3	-	3	8	4	381	3	2	261	41	455
Total, non-sci/eng(2)	1534	41	5	36	15	19	6	272	42	230	639	519	23	-	1	2	9594	11128
Unknown	1012	138	60	78	30	53	20	243	54	189	194	193	141	14	27	19	799	1811
Total, all fields ...	17524	2521	983	1538	628	744	218	4715	912	3803	3121	3098	2479	285	478	384	13496	31020
Year of doctorate - 1985																		
Total, sci/eng	15571	2631	978	1653	558	594	255	4302	1000	3302	2073	2337	2821	412	550	457	2842	18413
Physical sciences .	3265	2374	859	1515	121	24	19	393	37	356	34	21	279	42	77	15	164	3429
Physics/astronomy	1255	860	844	16	84	19	17	49	3	46	22	10	194	4	74	13	57	1312
Chemistry	2010	1514	15	1499	37	5	2	344	34	310	12	11	85	38	3	2	107	2117
Earth/atmos/mar sci	387	11	3	8	310	2	1	28	12	16	12	1	22	-	-	4	28	415
Mathematics	962	66	55	11	26	506	99	49	3	46	97	26	93	3	13	12	252	1214
Computer/info sci .	74	-	-	-	1	3	61	1	1	-	3	1	4	-	-	-	4	78
Agric & biol sci ..	4049	103	5	98	57	8	4	3667	910	2757	88	71	51	3	-	2	452	4501
Agricultural sci.	910	3	-	3	6	4	-	833	675	158	41	2	21	-	-	2	58	968
Biological sci ..	3139	100	5	95	51	4	4	2834	235	2599	47	69	30	3	-	-	394	3533
Social sciences ...	1981	5	2	3	9	7	5	44	19	25	1721	182	8	-	-	-	970	2951
Psychology	2214	4	-	4	3	3	4	82	4	78	81	2028	9	-	-	-	797	3011
Total, engineering(1)	2639	68	54	14	31	41	62	38	14	24	37	7	2355	364	460	424	175	2814
Chemical	438	15	3	12	2	3	2	7	3	4	5	-	404	352	2	5	13	451
Electrical	658	29	29	-	3	15	46	9	1	8	4	4	548	-	429	8	33	691
Mechanical	461	6	6	-	2	4	1	-	-	-	6	-	442	2	6	322	41	502
Total, non-sci/eng(2)	1678	76	11	65	15	24	30	277	40	237	671	543	42	1	7	1	8836	10514
Unknown	1462	209	91	118	44	70	25	324	71	253	250	237	303	27	74	55	908	2370
Total, all fields ...	18711	2916	1080	1836	617	688	310	4903	1111	3792	2994	3117	3166	440	631	513	12586	31297

See footnotes at end of table.

Table 7. Field-switching between baccalaureate and doctoral degrees by major field: selected years--continued

	Field of doctorate																	
	Total	Physical Sciences			Earth		Comp/	Agric & Biol Sci					Engineering(1)				Non-	Total
Field of baccalaureate	sci & eng	Sub-total	Phys& astr	Chem-istry	atmos & mar	Math	info sci	Sub-total	Agri sci	Biol sci	Soc sci	Psych	Sub-total	Chem	Elec	Mech	sci & eng(2)	all flds
Year of doctorate - 1987																		
Total, sci/eng	16094	2864	1099	1765	544	626	372	4081	856	3225	2018	2267	3322	509	602	586	2775	18869
Physical sciences .	3432	2531	943	1588	104	32	24	425	20	405	23	13	280	49	57	24	170	3602
Physics/astronomy	1256	921	913	8	70	27	21	34	3	31	11	5	167	-	55	22	68	1324
Chemistry	2176	1610	30	1580	34	5	3	391	17	374	12	8	113	49	2	2	102	2278
Earth/atmos/mar sci	389	10	5	5	308	-	-	24	10	14	15	3	29	1	-	3	25	414
Mathematics	979	61	47	14	18	545	138	41	6	35	89	14	73	2	11	6	254	1233
Computer/info sci .	110	3	1	2	-	3	91	1	-	1	5	1	6	-	4	-	6	116
Agric & biol sci ..	3882	126	7	119	72	7	7	3415	781	2634	95	79	81	10	2	2	453	4335
Agricultural sci.	870	9	1	8	10	1	1	770	586	184	51	1	27	2	-	1	69	939
Biological sci ..	3012	117	6	111	62	6	6	2645	195	2450	44	78	54	8	2	1	384	3396
Social sciences ...	1943	3	2	1	14	12	9	51	20	31	1660	169	25	2	-	3	940	2883
Psychology	2157	3	1	2	3	2	5	76	1	75	83	1972	13	-	-	-	744	2901
Total, engineering(1)	3202	127	93	34	25	25	98	48	18	30	48	16	2815	445	528	548	183	3385
Chemical	568	29	4	25	-	1	3	11	4	7	5	-	519	432	2	3	19	587
Electrical	731	29	27	2	2	9	62	9	1	8	10	6	604	1	477	3	37	768
Mechanical	625	12	12	-	2	8	11	2	2	-	5	3	582	1	5	429	37	662
Total, non-sci/eng(2)	1765	81	14	67	18	25	37	341	43	298	639	575	49	3	3	5	8779	10544
Unknown	1843	267	124	143	66	89	41	390	77	313	323	327	340	15	86	65	1100	2943
Total, all fields ...	19702	3212	1237	1975	628	740	450	4812	976	3836	2980	3169	3711	527	691	656	12654	32356
Year of doctorate - 1988																		
Total, sci/eng	16946	2957	1145	1812	637	623	426	4345	884	3461	2007	2191	3760	587	785	645	2806	19752
Physical sciences .	3583	2618	982	1636	112	26	32	433	30	403	22	22	318	50	84	21	155	3738
Physics/astronomy	1378	970	954	16	74	19	26	57	-	57	15	7	210	1	81	19	57	1435
Chemistry	2205	1648	28	1620	38	7	6	376	30	346	7	15	108	49	3	2	98	2303
Earth/atmos/mar sci	501	28	13	15	379	1	2	38	10	28	16	6	31	-	4	2	27	528
Mathematics	960	66	49	17	9	532	119	44	1	43	79	17	94	1	17	10	216	1176
Computer/info sci .	136	2	2	-	-	6	111	1	-	1	3	5	8	-	5	-	12	148
Agric & biol sci ..	4107	96	7	89	82	11	13	3662	804	2858	96	80	67	6	4	5	470	4577
Agricultural sci.	890	9	1	8	10	2	5	809	618	191	36	2	17	2	1	1	67	957
Biological sci ..	3217	87	6	81	72	9	8	2853	186	2667	60	78	50	4	3	4	403	3620
Social sciences ...	1890	5	3	2	13	11	14	53	16	37	1641	139	14	-	3	-	940	2830
Psychology	2109	4	1	3	-	8	10	57	1	56	109	1912	9	-	1	-	802	2911
Total, engineering(1)	3660	138	88	50	42	28	125	57	22	35	41	10	3219	530	667	607	184	3844
Chemical	688	47	14	33	2	1	7	15	6	9	7	1	608	511	3	4	18	706
Electrical	879	28	26	2	3	10	74	5	-	5	6	2	751	1	608	5	46	925
Mechanical	688	6	6	-	9	8	5	2	1	1	3	2	653	2	8	486	41	729
Total, non-sci/eng(2)	1811	63	12	51	22	27	56	336	46	290	690	567	50	1	5	5	8767	10578
Unknown	1981	298	145	153	69	99	33	442	85	357	355	306	379	37	95	65	1169	3150
Total, all fields ...	20738	3318	1302	2016	728	749	515	5123	1015	4108	3052	3064	4189	625	885	715	12742	33480
Year of doctorate - 1989																		
Total, sci/eng	17210	2843	1101	1742	636	688	481	4340	935	3405	2050	2162	4010	586	871	661	2791	20001
Physical sciences .	3542	2540	951	1589	105	35	42	473	27	446	20	11	316	44	79	25	142	3684
Physics/astronomy	1346	945	936	9	62	29	32	49	2	47	15	4	210	2	76	24	44	1390
Chemistry	2196	1595	15	1580	43	6	10	424	25	399	5	7	106	42	3	1	98	2294
Earth/atmos/mar sci	477	19	6	13	380	1	1	29	9	20	9	2	36	1	1	1	40	517
Mathematics	1103	63	52	11	15	590	158	49	3	46	95	29	104	4	22	8	254	1357
Computer/info sci .	162	2	1	1	-	8	127	2	-	2	3	5	15	-	4	-	13	175
Agric & biol sci ..	4063	90	5	85	83	9	8	3592	845	2747	134	81	66	8	2	4	499	4562
Agricultural sci.	977	5	1	4	12	2	2	867	673	194	69	1	19	2	-	2	74	1051
Biological sci ..	3086	85	4	81	71	7	6	2725	172	2553	65	80	47	6	2	2	425	3511
Social sciences ...	1935	3	1	2	12	11	13	60	24	36	1648	179	9	1	2	1	959	2894
Psychology	2035	2	-	2	2	2	12	76	6	70	93	1840	8	-	-	-	697	2732
Total, engineering(1)	3893	124	85	39	39	32	120	59	21	38	48	15	3456	528	761	622	187	4080
Chemical	673	28	2	26	3	5	6	16	6	10	1	1	613	517	6	7	27	700
Electrical	995	37	37	-	6	10	67	14	2	12	8	5	848	-	694	7	46	1041
Mechanical	697	9	7	2	3	6	15	5	4	1	8	1	650	1	6	482	32	729
Total, non-sci/eng(2)	1850	74	15	59	29	35	68	369	43	326	670	543	62	2	7	6	8721	10571
Unknown	2456	332	162	170	73	138	63	485	110	375	397	504	464	36	115	90	1291	3747
Total, all fields ...	21516	3249	1278	1971	738	861	612	5194	1088	4106	3117	3209	4536	624	993	757	12803	34319

NOTE: See Technical Notes for definition of field-switching.

(1) Subtotal includes engineering fields not separately shown.

(2) Non-science/engineering doctorates in this table include doctorates whose field of specialization is unclassified.

SOURCE: Survey of Earned Doctorates

Table 8. State of doctorate-granting institution for science and engineering doctorates by major field and sex: 1989

State of PhD institution	Total sci & eng	Physical Sciences			Earth atmos & mar	Math	Comp/ info sci	Agric & Biol Sci			Soc sci	Psych	Engineering(1)				Non-sci & eng(2)	Total all flds
		Sub-total	Phys& astr	Chem-istry				Sub-total	Agri sci	Biol sci			Sub-total	Chem	Elec	Mech		
TOTAL, MALE AND FEMALE																		
Total, all States	21516	3249	1278	1971	738	861	612	5194	1088	4106	3117	3209	4536	624	993	757	12803	34319
Alabama	185	28	10	18	1	5	10	49	14	35	9	38	45	7	11	6	156	341
Alaska	12	1	1	-	5	1	-	4	1	3	1	-	-	-	-	-	1	13
Arizona	341	85	44	41	12	9	13	82	24	58	27	37	76	6	27	15	213	554
Arkansas	47	4	2	2	-	3	-	26	9	17	-	8	6	1	1	-	49	96
California	3001	450	202	248	111	118	82	588	48	540	400	591	661	56	206	91	1128	4129
Colorado	412	61	26	35	37	18	4	93	25	68	55	49	95	9	23	10	209	621
Connecticut	338	76	25	51	3	22	11	72	6	66	72	45	37	5	11	8	199	537
Delaware	91	16	3	13	8	7	4	8	1	7	13	9	26	14	6	2	21	112
Florida	514	71	22	49	20	11	25	123	38	85	55	124	85	6	21	16	596	1110
Georgia	428	51	6	45	7	9	9	152	31	121	40	77	83	10	11	19	307	735
Hawaii	127	19	9	10	13	4	-	32	10	22	48	9	2	-	-	-	35	162
Idaho	45	6	3	3	4	6	-	14	8	6	-	-	15	3	5	3	16	61
Illinois	1225	185	76	109	24	51	53	249	43	206	222	187	254	31	62	54	699	1924
Indiana	587	119	38	81	5	23	17	126	28	98	95	48	154	25	54	18	342	929
Iowa	351	56	19	37	8	15	5	106	38	68	50	34	77	9	5	15	234	585
Kansas	242	25	5	20	3	5	7	101	35	66	27	36	38	5	11	4	137	379
Kentucky	152	12	3	9	2	4	-	61	20	41	20	35	18	6	3	4	114	266
Louisiana	215	27	6	21	8	13	18	68	23	45	24	28	29	8	2	3	166	381
Maine	28	4	1	3	-	-	-	5	3	2	1	13	5	2	-	-	8	36
Maryland	433	54	29	25	13	20	14	131	13	118	68	49	84	7	27	9	253	686
Massachusetts	1215	220	103	117	52	69	37	228	15	213	232	86	291	48	51	52	709	1924
Michigan	762	105	31	74	15	35	14	175	50	125	135	98	185	23	19	38	432	1194
Minnesota	360	38	12	26	8	18	10	105	39	66	54	52	75	21	12	19	178	538
Mississippi	103	12	3	9	-	-	1	35	14	21	8	31	16	3	4	2	142	245
Missouri	326	30	6	24	15	11	6	102	27	75	28	65	69	12	11	14	236	562
Montana	36	12	6	6	2	3	-	9	3	6	1	7	2	1	1	-	21	57
Nebraska	133	20	3	17	2	3	3	50	23	27	20	25	10	-	-	-	114	247
Nevada	20	3	1	2	3	-	-	5	-	5	-	7	2	-	-	-	15	35
New Hampshire	59	13	8	5	3	6	-	16	2	14	9	9	3	-	-	-	6	65
New Jersey	439	86	40	46	19	24	8	89	12	77	60	52	101	32	8	15	217	656
New Mexico	151	28	18	10	15	8	4	31	14	17	6	28	31	1	14	3	67	218
New York	2146	331	145	186	64	79	74	485	76	409	343	411	359	59	103	51	1317	3463
North Carolina	518	59	21	38	12	16	11	197	40	157	62	57	104	7	14	18	257	775
North Dakota	54	20	5	15	1	-	-	22	13	9	-	8	3	-	-	-	9	63
Ohio	864	139	46	93	12	24	22	204	26	178	85	132	246	32	51	36	590	1454
Oklahoma	187	16	5	11	6	3	5	44	13	31	30	34	49	13	4	8	172	359
Oregon	238	25	16	9	8	7	10	92	41	51	46	22	28	4	5	8	156	394
Pennsylvania	1101	169	62	107	21	42	41	208	19	189	160	154	306	46	58	48	807	1908
Rhode Island	174	36	17	19	23	22	5	23	3	20	19	13	33	3	14	10	48	222
South Carolina	163	23	9	14	7	9	2	56	7	49	16	16	34	1	6	10	134	297
South Dakota	25	-	-	-	1	-	-	13	9	4	1	8	2	-	-	-	22	47
Tennessee	255	21	7	14	2	6	1	75	8	67	35	72	43	5	9	4	260	515
Texas	1276	197	75	122	73	50	43	286	65	221	167	137	323	50	60	49	907	2183
Utah	234	28	8	20	10	7	4	46	10	36	23	46	70	16	9	9	133	367
Vermont	39	9	1	8	-	-	-	16	-	16	-	11	3	-	1	1	9	48
Virginia	513	77	27	50	16	20	12	133	43	90	50	63	142	13	17	40	243	756
Washington	388	46	18	28	33	19	13	123	39	84	62	37	55	9	10	9	195	583
West Virginia	65	10	5	5	2	-	-	19	5	14	7	10	17	3	2	1	47	112
Wisconsin	545	83	32	51	24	24	10	157	51	106	114	32	101	12	15	24	252	797
Wyoming	47	8	4	4	4	4	-	12	3	9	5	7	7	-	4	2	12	59
District of Columbia	283	30	13	17	1	8	4	47	-	47	111	46	36	-	5	9	198	481
Puerto Rico	23	5	1	4	-	-	-	1	-	1	1	16	-	-	-	-	15	38

See footnotes at end of table.

Table 8. State of doctorate-granting institution for science and engineering doctorates by major field and sex: 1989--continued

	Field of study																
	Total sci & eng	Physical Sciences			Earth atmos & mar	Math	Comp/ info sci	Agric & Biol Sci			Soc sci	Psych	Engineering(1)				Non-sci & eng(2)	Total all flds
State of PhD institution		Sub-total	Phys& astr	Chemistry				Sub-total	Agri sci	Biol sci			Sub-total	Chem	Elec	Mech		
MALE																		
Total, all States	15522	2634	1160	1474	590	705	505	3431	859	2572	2085	1409	4163	550	939	728	6287	21809
Alabama	135	24	10	14	1	4	8	35	13	22	9	14	40	7	10	5	57	192
Alaska	8	1	1	-	4	1	-	2	-	2	-	-	-	-	-	-	-	8
Arizona	262	74	41	33	11	8	8	55	20	35	17	17	72	5	27	13	112	374
Arkansas	36	4	2	2	-	2	-	19	7	12	-	6	5	1	-	-	25	61
California	2093	357	182	175	84	97	72	387	36	351	242	248	606	43	195	89	571	2664
Colorado	302	46	23	23	32	14	3	60	23	37	38	22	87	8	23	9	110	412
Connecticut	222	56	24	32	1	17	10	39	4	35	47	19	33	5	11	7	92	314
Delaware	68	14	2	12	6	5	3	6	1	5	5	5	24	13	6	2	6	74
Florida	342	55	18	37	16	9	18	87	28	59	27	53	77	6	20	15	296	638
Georgia	297	38	5	33	7	5	9	99	26	73	23	39	77	7	10	19	133	430
Hawaii	90	17	8	9	10	4	-	25	9	16	27	5	2	-	-	-	14	104
Idaho	41	6	3	3	4	5	-	11	7	4	-	-	15	3	5	3	9	50
Illinois	891	158	72	86	17	42	46	154	34	120	146	90	238	28	60	51	355	1246
Indiana	462	99	32	67	3	21	11	91	22	69	71	25	141	20	53	18	178	640
Iowa	272	43	17	26	7	11	5	80	31	49	38	14	74	7	5	15	126	398
Kansas	185	21	5	16	3	3	6	75	28	47	23	19	35	4	11	4	66	251
Kentucky	106	9	2	7	2	3	-	44	17	27	14	16	18	6	3	4	71	177
Louisiana	149	18	4	14	6	9	16	49	18	31	15	9	27	7	1	3	101	250
Maine	18	4	1	3	-	-	-	2	2	-	1	7	4	2	-	-	3	21
Maryland	295	39	25	14	11	18	12	76	9	67	45	16	78	7	26	9	96	391
Massachusetts	910	177	90	87	40	60	32	150	12	138	154	36	261	42	48	51	340	1250
Michigan	588	89	28	61	13	29	13	124	40	84	95	52	173	22	19	36	247	835
Minnesota	269	31	12	19	8	16	9	78	29	49	39	20	68	19	12	18	95	364
Mississippi	76	10	3	7	-	-	-	26	12	14	7	17	16	3	4	2	79	155
Missouri	238	26	6	20	11	9	4	75	20	55	18	29	66	10	11	14	137	375
Montana	28	11	6	5	1	3	-	8	3	5	1	2	2	1	1	-	7	35
Nebraska	104	20	3	17	2	3	3	34	21	13	16	16	10	-	-	-	56	160
Nevada	13	2	1	1	2	-	-	4	-	4	-	3	2	-	-	-	6	19
New Hampshire	35	10	8	2	-	5	-	9	1	8	3	5	3	-	-	-	3	38
New Jersey	310	69	38	31	15	22	7	51	8	43	37	22	87	27	6	14	105	415
New Mexico	112	25	16	9	11	6	3	24	13	11	5	10	28	1	13	3	32	144
New York	1438	258	129	129	48	67	60	286	56	230	226	169	324	52	96	46	584	2022
North Carolina	380	48	20	28	11	14	10	141	32	109	43	20	93	5	13	18	121	501
North Dakota	42	17	2	15	1	-	-	16	10	6	-	5	3	-	-	-	3	45
Ohio	644	120	45	75	11	22	20	135	22	113	57	57	222	29	46	36	299	943
Oklahoma	136	14	4	10	5	3	1	26	12	14	25	15	47	13	4	8	81	217
Oregon	175	19	13	6	7	5	9	66	35	31	31	12	26	3	5	8	80	255
Pennsylvania	812	139	60	79	14	33	34	133	14	119	114	65	280	40	54	46	389	1201
Rhode Island	125	26	17	9	19	17	5	10	1	9	14	5	29	1	14	8	19	144
South Carolina	117	17	9	8	6	5	2	38	7	31	12	7	30	1	5	9	71	188
South Dakota	19	-	-	-	1	-	-	9	6	3	-	7	2	-	-	-	14	33
Tennessee	158	17	6	11	2	4	1	44	4	40	23	27	40	5	9	4	123	281
Texas	952	162	67	95	62	35	30	187	49	138	116	63	297	46	55	47	442	1394
Utah	192	26	8	18	9	7	4	31	6	25	18	30	67	15	8	9	75	267
Vermont	20	5	1	4	-	-	-	11	-	11	-	3	1	-	1	-	2	22
Virginia	375	59	25	34	14	18	7	86	38	48	34	29	128	12	16	40	121	496
Washington	287	39	16	23	28	15	11	84	30	54	41	18	51	9	8	9	86	373
West Virginia	50	9	5	4	2	-	-	12	4	8	5	3	17	3	2	1	20	70
Wisconsin	415	76	30	46	18	20	9	99	36	63	86	11	96	12	15	24	128	543
Wyoming	44	7	4	3	3	4	-	12	3	9	5	6	7	-	4	2	6	50
District of Columbia	177	20	10	10	1	5	4	26	-	26	72	15	34	-	4	9	91	268
Puerto Rico	7	3	1	2	-	-	-	-	-	-	-	4	-	-	-	-	4	11

See footnotes at end of table.

Table 8. State of doctorate-granting institution for science and engineering doctorates by major field and sex: 1989--continued

	Field of study																	
	Total sci & eng	Physical Sciences			Earth atmos & mar	Math	Comp/ info sci	Agric & Biol Sci			Soc sci	Psych	Engineering(1)				Non-sci & eng(2)	Total all flds
State of PhD institution		Sub-total	Phys& astr	Chem-istry				Sub-total	Agri sci	Biol sci			Sub-total	Chem	Elec	Mech		
FEMALE																		
Total, all States	5994	615	118	497	148	156	107	1763	229	1534	1032	1800	373	74	54	29	6516	12510
Alabama	50	4	-	4	-	1	2	14	1	13	-	24	5	-	1	1	99	149
Alaska	4	-	-	-	1	-	-	2	1	1	1	-	-	-	-	-	1	5
Arizona	79	11	3	8	1	1	5	27	4	23	10	20	4	1	-	2	101	180
Arkansas	11	-	-	-	-	1	-	7	2	5	-	2	1	-	1	-	24	35
California	908	93	20	73	27	21	10	201	12	189	158	343	55	13	11	2	557	1465
Colorado	110	15	3	12	5	4	1	33	2	31	17	27	8	1	-	1	99	209
Connecticut	116	20	1	19	2	5	1	33	2	31	25	26	4	-	-	1	107	223
Delaware	23	2	1	1	2	2	1	2	-	2	8	4	2	1	-	-	15	38
Florida	172	16	4	12	4	2	7	36	10	26	28	71	8	-	1	1	300	472
Georgia	131	13	1	12	-	4	-	53	5	48	17	38	6	3	1	-	174	305
Hawaii	37	2	1	1	3	-	-	7	1	6	21	4	-	-	-	-	21	58
Idaho	4	-	-	-	-	1	-	3	1	2	-	-	-	-	-	-	7	11
Illinois	334	27	4	23	7	9	7	95	9	86	76	97	16	3	2	3	344	678
Indiana	125	20	6	14	2	2	6	35	6	29	24	23	13	5	1	-	164	289
Iowa	79	13	2	11	1	4	-	26	7	19	12	20	3	2	-	-	108	187
Kansas	57	4	-	4	-	2	1	26	7	19	4	17	3	1	-	-	71	128
Kentucky	46	3	1	2	-	1	-	17	3	14	6	19	-	-	-	-	43	89
Louisiana	66	9	2	7	2	4	2	19	5	14	9	19	2	1	1	-	65	131
Maine	10	-	-	-	-	-	-	3	1	2	-	6	1	-	-	-	5	15
Maryland	138	15	4	11	2	2	2	55	4	51	23	33	6	-	1	-	157	295
Massachusetts	305	43	13	30	12	9	5	78	3	75	78	50	30	6	3	1	369	674
Michigan	174	16	3	13	2	6	1	51	10	41	40	46	12	1	-	2	185	359
Minnesota	91	7	-	7	-	2	1	27	10	17	15	32	7	2	-	1	83	174
Mississippi	27	2	-	2	-	-	1	9	2	7	1	14	-	-	-	-	63	90
Missouri	88	4	-	4	4	2	2	27	7	20	10	36	3	2	-	-	99	187
Montana	8	1	-	1	1	-	-	1	-	1	-	5	-	-	-	-	14	22
Nebraska	29	-	-	-	-	-	-	16	2	14	4	9	-	-	-	-	58	87
Nevada	7	1	-	1	1	-	-	1	-	1	-	4	-	-	-	-	9	16
New Hampshire	24	3	-	3	3	1	-	7	1	6	6	4	-	-	-	-	3	27
New Jersey	129	17	2	15	4	2	1	38	4	34	23	30	14	5	2	1	112	241
New Mexico	39	3	2	1	4	2	1	7	1	6	1	18	3	-	1	-	35	74
New York	708	73	16	57	16	12	14	199	20	179	117	242	35	7	7	5	733	1441
North Carolina	138	11	1	10	1	2	1	56	8	48	19	37	11	2	1	-	136	274
North Dakota	12	3	3	-	-	-	-	6	3	3	-	3	-	-	-	-	6	18
Ohio	220	19	1	18	1	2	2	69	4	65	28	75	24	3	5	-	291	511
Oklahoma	51	2	1	1	1	-	4	18	1	17	5	19	2	-	-	-	91	142
Oregon	63	6	3	3	1	2	1	26	6	20	15	10	2	1	-	-	76	139
Pennsylvania	289	30	2	28	7	9	7	75	5	70	46	89	26	6	4	2	418	707
Rhode Island	49	10	-	10	4	5	-	13	2	11	5	8	4	2	-	2	29	78
South Carolina	46	6	-	6	1	4	-	18	-	18	4	9	4	-	1	1	63	109
South Dakota	6	-	-	-	-	-	-	4	3	1	1	1	-	-	-	-	8	14
Tennessee	97	4	1	3	-	2	-	31	4	27	12	45	3	-	-	-	137	234
Texas	324	35	8	27	11	15	13	99	16	83	51	74	26	4	5	2	465	789
Utah	42	2	-	2	1	-	-	15	4	11	5	16	3	1	1	-	58	100
Vermont	19	4	-	4	-	-	-	5	-	5	-	8	2	-	-	1	7	26
Virginia	138	18	2	16	2	2	5	47	5	42	16	34	14	1	1	-	122	260
Washington	101	7	2	5	5	4	2	39	9	30	21	19	4	-	2	-	109	210
West Virginia	15	1	-	1	-	-	-	7	1	6	2	5	-	-	-	-	27	42
Wisconsin	130	7	2	5	6	4	1	58	15	43	28	21	5	-	-	-	124	254
Wyoming	3	1	-	1	1	-	-	-	-	-	-	1	-	-	-	-	6	9
District of Columbia	106	10	3	7	-	3	-	21	-	21	39	31	2	-	1	-	107	213
Puerto Rico	16	2	-	2	-	-	-	1	-	1	1	12	-	-	-	-	11	27

(1) Subtotal includes engineering fields not separately shown.

(2) Non-science/engineering doctorates in this table include doctorates whose field of specialization is unclassified.

SOURCE: Survey of Earned Doctorates

Table 9. Top 100 doctorate-producing institutions for science and engineering doctorates by sex(1): 1979-89

	Year of doctorate											
Institution	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1979-1989
TOTAL, MALE AND FEMALE												
Calif, U-Berkeley	528	540	483	542	519	517	549	563	534	585	657	6017
Wisconsin,U-Madison	447	400	389	442	398	399	458	413	453	479	483	4761
Mass Inst Technology	360	372	384	391	412	389	421	442	436	489	468	4564
Ill, U, Urbana-Champ	436	394	411	358	382	381	442	383	434	444	468	4533
Stanford Univ/CA	374	327	358	339	308	364	334	393	405	410	412	4024
Cornell Univ/NY	330	330	333	328	355	351	337	371	367	377	395	3874
Ohio State Univ	296	300	274	305	293	269	323	297	322	307	371	3357
Minnesota,U-Minneapl	257	291	316	291	275	312	336	381	310	337	360	3466
Purdue University/IN	294	297	326	288	305	308	308	320	300	302	348	3396
Michigan, Univ of	322	292	315	323	376	348	371	348	344	344	335	3718
Calif, U-Los Angeles	315	314	330	310	311	296	296	282	288	363	334	3439
Texas, U-Austin	245	219	228	234	228	227	255	298	330	326	329	2919
Texas A&M University	184	211	195	180	202	227	221	228	257	253	310	2468
Penn State Univ	233	215	233	240	261	243	234	237	251	260	289	2696
Michigan State Univ	260	281	279	305	299	250	240	242	258	268	287	2969
Pennsylvania, U of	213	201	214	256	217	211	206	202	248	221	272	2461
Washington, U of	234	228	231	246	249	237	221	249	262	279	272	2708
Northwestern Univ/IL	190	178	184	193	179	188	218	207	211	220	259	2227
Florida, Univ of	199	170	166	142	206	203	216	203	223	236	259	2223
Columbia Univ/NY	221	228	231	222	197	233	245	219	215	223	257	2491
VA Poly Inst&State U	129	110	135	144	152	164	167	178	187	192	250	1808
Calif, U-Davis	188	233	253	193	276	239	209	229	234	252	247	2553
Maryland, Univ of	203	175	172	202	192	209	210	213	220	205	244	2245
Arizona, Univ of	143	184	154	179	188	197	182	171	214	225	237	2074
Harvard Univ/MA	261	248	232	244	256	246	205	243	215	241	221	2612
Iowa State Univ	175	203	211	205	186	196	210	206	247	255	221	2315
NC State U-Raleigh	134	112	128	168	164	171	175	193	180	210	199	1834
Chicago, Univ of/IL	191	190	219	223	200	192	163	195	188	206	195	2162
Yale University/CT	175	166	163	172	165	177	165	149	202	181	193	1908
Southern Calif, U of	150	152	147	143	177	192	163	187	147	156	190	1804
Mass, U of-Amherst	173	146	153	151	144	149	175	146	169	157	185	1748
Colorado, U-Boulder	144	165	156	132	146	150	141	168	159	173	183	1717
Rutgers Univ/NJ	178	159	189	149	171	171	173	167	168	173	181	1879
NC, U of-Chapel Hill	174	185	176	158	188	170	151	157	166	173	174	1872
Princeton Univ/NJ	180	139	150	164	169	165	156	167	151	205	172	1818
Calif, U-San Diego	106	124	150	140	143	129	125	140	142	177	172	1548
Georgia, Univ of	125	124	142	149	134	127	180	145	136	152	169	1583
SUNY at Buffalo	165	169	153	191	151	136	143	146	155	176	158	1743
CUNY-Grad Sch&U Ctr	178	123	144	142	147	147	143	165	171	195	157	1712
Johns Hopkins U/MD	124	119	141	122	128	136	166	149	152	162	156	1555
Virginia, Univ of	117	113	105	104	123	111	119	111	126	144	150	1323
Colorado State Univ	117	115	139	131	143	147	140	141	145	166	149	1533
SUNY at Stony Brook	125	129	103	126	119	147	143	137	157	141	147	1474
Pittsburgh, Univ of	136	152	122	163	144	152	171	151	166	167	147	1671
Rochester,Univ of/NY	141	133	106	114	117	96	104	127	123	106	143	1310
LA St Univ & A&M C	84	77	67	66	77	64	76	101	103	118	142	975
New York University	193	183	182	203	157	170	156	158	176	176	140	1894
Case Westrn Rsrve/OH	94	110	92	105	91	114	101	115	122	108	138	1190
Indiana U Bloomngton	164	132	160	153	154	164	154	133	141	161	136	1652
Cal Inst Technology	124	125	129	120	136	122	129	133	147	146	134	1445

See footnote at end of table.

Table [illegible]. Top 100 doctorate-producing institutions for science and engineering doctorates by sex(1): 1979-89--continued

Institution	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1979-1989
	Year of doctorate											
TOTAL, MALE AND FEMALE												
Carnegie Mellon U/PA	78	62	84	78	75	83	112	103	94	119	133	1021
Kansas, Univ of	133	137	118	136	118	130	161	113	123	107	133	1409
Nebraska, U-Lincoln	103	110	141	117	134	126	104	108	119	136	130	1328
Connecticut, Univ of	86	108	124	83	91	117	107	112	125	125	128	1206
Hawaii, Univ of	104	80	92	88	91	86	108	106	103	76	127	1061
Iowa, University of	123	91	93	121	97	103	108	109	134	146	122	1247
Tenn, U-Knoxville	112	119	135	132	121	127	126	143	126	130	122	1393
Missouri, U-Columbia	156	138	114	123	116	134	120	110	101	141	121	1374
Calif, U-Santa Barb	90	112	103	89	93	113	103	97	112	121	121	1154
Utah, Univ of	105	116	108	111	110	110	112	119	117	141	120	1269
Boston University/MA	75	95	75	107	108	122	109	129	123	117	119	1179
Georgia Inst Tech	48	58	50	58	72	80	64	82	87	94	116	809
Kentucky, Univ of	86	90	74	63	90	90	86	77	95	93	116	960
Washington State U	110	108	104	102	107	128	110	121	128	128	116	1262
Oregon State Univ	110	92	125	104	145	121	137	110	103	125	115	1287
Rensselaer Poly I/NY	44	55	73	72	87	77	101	98	120	123	113	963
Cincinnati, U of/OH	89	88	82	93	103	107	93	95	95	111	113	1069
Duke University/NC	122	138	143	125	130	126	118	105	119	96	112	1334
Cal S Prof Psy-L.A.	41	32	43	52	52	42	46	56	61	58	112	595
Illinois,U-Chicago	32	53	65	55	56	58	74	81	111	109	110	804
Brown University/RI	84	101	85	91	80	83	101	96	101	116	108	1046
Oklahoma State Univ	99	93	99	87	92	107	107	109	102	107	104	1106
Syracuse Univ/NY	118	99	92	79	66	82	75	76	85	105	103	980
Arizona State Univ	52	58	48	72	60	54	58	67	74	85	99	727
Washington Univ/MO	82	102	96	105	105	96	89	91	92	102	97	1057
Rice University/TX	78	55	59	53	56	70	60	77	86	71	97	762
Temple University/PA	82	71	82	91	74	76	86	90	116	90	96	954
Kansas State Univ	68	72	91	78	87	73	96	85	103	105	96	954
Houston, U of/TX	61	71	66	78	70	80	68	77	77	92	95	835
Florida State Univ	129	110	104	96	109	91	93	97	87	114	93	1123
Delaware, Univ of	44	54	39	87	52	82	71	81	78	87	91	766
U S Internat'l U/CA	121	169	201	165	156	124	78	62	65	68	90	1299
Vanderbilt Univ/TN	67	79	65	56	56	71	79	63	76	75	88	775
Calif,U-Irvine	61	55	66	74	63	72	65	98	70	99	87	810
Wayne State Univ/MI	102	99	79	81	103	75	84	94	70	84	86	957
Geo Washington U/DC	78	75	81	88	94	80	83	116	58	96	86	935
New Mexico, Univ of	49	54	56	44	56	52	71	88	79	79	86	714
Oregon, Univ of	90	79	88	77	71	92	74	91	49	58	84	853
Texas Tech Univ	51	48	47	37	66	71	62	76	75	77	82	692
Oklahoma, U of	93	95	86	69	99	66	70	83	68	73	80	882
South Carolina, U of	65	66	65	75	69	61	83	79	77	106	78	824
Auburn University/AL	53	51	46	48	43	43	51	56	64	67	78	600
Notre Dame, U of/IN	49	61	58	52	75	53	57	75	78	58	75	691
SUNY at Albany	39	60	49	57	72	62	71	75	63	82	70	700
Lehigh University/PA	42	34	35	25	34	60	48	50	61	62	68	519
Clemson Univ/SC	41	28	30	32	47	47	43	45	41	59	68	481
Emory Univ/GA	45	29	44	43	34	37	37	34	50	34	67	454
Miami, Univ of/FL	63	65	50	50	52	61	52	64	79	83	67	686
Calif, U-Riverside	93	99	86	90	84	94	105	84	72	86	67	960
Rhode Island, U of	51	44	44	61	62	57	56	58	62	71	66	632

See footnote at end of table.

Table 9. Top 100 doctorate-producing institutions for science and engineering doctorates by sex(1): 1979-89--continued

	Year of doctorate											
Institution	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1979-1989
MALE												
Calif, U-Berkeley	426	439	384	432	411	422	421	427	408	457	491	4718
Mass Inst Technology	333	326	325	343	347	337	350	357	356	404	390	3868
Ill, U, Urbana-Champ	380	355	354	312	327	325	354	305	362	367	377	3818
Wisconsin,U-Madison	358	321	316	349	315	317	353	326	369	362	371	3757
Stanford Univ/CA	305	278	318	284	259	305	269	334	327	347	333	3359
Cornell Univ/NY	269	276	270	259	281	264	262	284	285	263	284	2997
Purdue University/IN	258	260	285	249	251	261	249	252	230	253	282	2830
Ohio State Univ	227	238	195	239	223	205	235	231	250	228	278	2549
Minnesota,U-Minneapl	203	223	231	232	208	238	265	289	210	259	269	2627
Michigan, Univ of	232	239	236	241	268	259	287	256	249	268	268	2803
Texas A&M University	167	182	169	158	168	196	192	186	215	212	246	2091
Texas, U-Austin	197	168	185	185	175	174	193	238	257	250	245	2267
Calif, U-Los Angeles	244	228	261	232	237	218	216	198	200	256	231	2521
Penn State Univ	200	181	182	193	204	196	191	182	191	205	228	2153
Michigan State Univ	214	233	230	249	237	197	194	180	199	188	220	2341
VA Poly Inst&State U	112	101	117	111	133	132	140	146	151	150	206	1499
Washington, U of	177	174	185	194	192	174	171	191	202	198	205	2063
Pennsylvania, U of	153	155	156	181	145	134	156	144	167	148	194	1733
Calif, U-Davis	163	184	200	151	229	184	155	170	162	182	192	1972
Northwestern Univ/IL	139	125	139	151	130	135	161	147	149	159	184	1619
Florida, Univ of	166	138	134	112	154	166	176	162	173	179	184	1744
Arizona, Univ of	117	145	133	154	151	168	143	139	169	171	184	1674
Iowa State Univ	153	168	184	176	157	161	166	168	207	191	181	1912
Columbia Univ/NY	147	143	163	160	134	155	172	138	150	151	171	1684
NC State U-Raleigh	122	98	106	140	141	143	135	155	147	162	167	1516
Maryland, Univ of	144	135	120	129	129	139	138	147	150	149	165	1545
Harvard Univ/MA	204	195	180	179	195	179	155	178	172	181	163	1981
Southern Calif, U of	123	117	110	104	132	134	116	142	106	120	146	1350
Chicago, Univ of/IL	150	151	172	177	145	139	111	137	144	149	143	1618
Yale University/CT	140	126	128	133	127	133	118	111	148	131	137	1432
Princeton Univ/NJ	152	111	126	133	136	122	131	129	123	173	135	1471
Mass, U of-Amherst	129	104	117	114	101	101	129	98	124	109	133	1259
Colorado, U-Boulder	111	124	116	99	100	109	105	128	117	125	128	1262
Calif, U-San Diego	83	100	126	111	106	94	91	104	109	127	125	1176
NC, U of-Chapel Hill	126	119	125	116	125	121	95	115	105	108	121	1276
Colorado State Univ	109	101	126	109	133	117	122	124	122	128	120	1311
Rutgers Univ/NJ	135	124	128	114	117	125	129	120	110	120	117	1339
Johns Hopkins U/MD	99	96	105	91	87	91	109	107	120	109	113	1127
Case Westrn Rsrve/OH	77	90	75	78	74	88	82	88	89	90	112	943
SUNY at Buffalo	135	131	118	145	120	98	100	108	114	127	110	1306
Carnegie Mellon U/PA	72	58	73	67	66	63	96	84	78	99	106	862
Pittsburgh, Univ of	109	113	93	123	103	107	120	120	118	115	106	1227
Georgia Inst Tech	45	56	45	53	68	71	51	74	72	76	106	717
Cal Inst Technology	108	110	114	108	129	111	109	120	130	123	105	1267
Nebraska, U-Lincoln	82	92	119	90	110	104	76	73	80	96	103	1025
SUNY at Stony Brook	94	95	75	96	93	112	104	89	107	100	101	1066
Rochester,Univ of/NY	112	101	83	84	94	77	84	98	97	77	100	1007
Indiana U Bloomngton	129	106	116	113	114	121	116	100	107	112	100	1234
Georgia, Univ of	102	95	113	108	100	83	128	101	90	103	100	1123
LA St Univ & A&M C	75	54	54	55	62	54	62	75	76	95	100	762

See footnote at end of table.

Table 9. Top 100 doctorate-producing institutions for science and engineering doctorates by sex(1): 1979-89--continued

	Year of doctorate											
Institution	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1979-1989
MALE												
Virginia, Univ of	98	95	86	80	90	86	83	87	90	110	99	1004
Missouri, U-Columbia	119	112	101	99	89	110	95	85	73	99	97	1079
Utah, Univ of	89	100	92	85	83	92	95	84	95	115	97	1027
Kansas, Univ of	96	107	92	93	85	100	119	81	79	74	95	1021
Rensselaer Poly I/NY	43	52	65	64	79	71	92	88	104	105	92	855
Cincinnati, U of/OH	70	61	65	63	82	88	65	61	73	78	91	797
Oregon State Univ	100	81	105	91	128	97	115	91	82	104	91	1085
Hawaii, Univ of	80	65	72	67	67	66	81	74	68	54	90	784
Iowa, University of	108	78	74	97	75	79	94	84	102	116	86	993
New York University	121	100	108	121	91	95	86	90	102	106	85	1105
Calif, U-Santa Barb	73	94	80	73	71	89	81	78	91	96	85	911
Boston University/MA	33	59	41	72	59	77	68	74	64	68	82	697
Washington State U	99	89	86	78	84	102	90	85	99	105	82	999
Brown University/RI	66	81	71	73	60	63	76	69	75	87	81	802
Kentucky, Univ of	73	73	66	46	69	71	68	61	71	62	81	741
CUNY-Grad Sch&U Ctr	117	75	86	88	86	85	95	100	98	116	79	1025
Syracuse Univ/NY	89	72	75	58	39	61	53	52	60	73	79	711
Tenn, U-Knoxville	97	96	106	110	94	94	104	108	91	100	79	1079
Kansas State Univ	58	60	78	65	74	60	81	64	80	75	77	772
Duke University/NC	99	87	100	82	79	94	80	75	77	71	76	920
Connecticut, Univ of	62	83	77	55	65	81	72	80	87	93	75	830
Oklahoma State Univ	84	83	80	71	72	87	90	91	81	81	75	895
Arizona State Univ	43	43	35	54	44	37	42	50	52	66	74	540
Illinois,U-Chicago	26	36	40	35	38	36	50	54	68	74	71	528
Houston, U of/TX	51	55	48	62	53	57	51	62	64	74	71	648
Rice University/TX	72	43	51	43	40	52	49	54	74	53	70	601
Washington Univ/MO	71	75	73	80	76	75	68	62	67	68	69	784
Delaware, Univ of	39	45	29	70	35	62	51	66	60	64	68	589
Texas Tech Univ	46	40	42	28	50	53	48	57	60	64	65	553
Wayne State Univ/MI	86	76	56	61	76	59	61	65	47	58	61	706
Calif,U-Irvine	51	35	46	52	53	54	51	69	56	78	61	606
Lehigh University/PA	39	31	32	23	29	50	38	43	53	54	60	452
New Mexico, Univ of	41	39	42	26	49	37	55	67	63	59	60	538
Florida State Univ	99	86	80	70	76	72	70	73	57	83	59	825
Oklahoma, U of	81	78	67	54	68	55	54	56	47	55	59	674
Clemson Univ/SC	35	27	24	29	44	40	37	37	34	49	58	414
Auburn University/AL	46	43	39	41	33	27	33	50	45	57	58	472
Oregon, Univ of	64	61	57	52	52	63	49	63	35	42	58	596
Notre Dame, U of/IN	44	44	50	38	57	38	42	57	56	42	57	525
Geo Washington U/DC	57	52	61	59	61	55	57	82	40	67	57	648
Temple University/PA	52	49	56	54	40	41	53	63	84	53	56	601
Vanderbilt Univ/TN	58	62	45	39	41	56	52	43	51	52	53	552
Utah State Univ	56	51	51	44	51	69	46	43	56	60	51	578
West Virginia Univ	51	56	45	53	48	45	47	48	41	52	50	536
South Carolina, U of	51	51	49	51	53	43	63	54	58	67	50	590
Calif, U-Riverside	73	81	70	67	58	70	79	66	51	63	49	727
Texas,U-Dallas	14	11	24	16	16	13	13	17	15	31	46	216
Rhode Island, U of	40	35	33	46	45	38	32	48	46	51	44	458
Wyoming, Univ of	28	42	44	30	34	29	33	40	38	37	44	399
Brigham Young U/UT	37	29	34	35	35	36	35	34	29	45	44	393

See footnote at end of table.

Table 9. Top 100 doctorate-producing institutions for science and engineering doctorates by sex(1): 1979-89--continued

	Year of doctorate											
Institution	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1979-1989
FEMALE												
Calif, U-Berkeley	102	101	99	110	108	95	128	136	126	128	166	1299
Wisconsin,U-Madison	89	79	73	93	83	82	105	87	84	117	112	1004
Cornell Univ/NY	61	54	63	69	74	87	75	87	82	114	111	877
Calif, U-Los Angeles	71	86	69	78	74	78	80	84	88	107	103	918
Ohio State Univ	69	62	79	66	70	64	88	66	72	79	93	808
Ill, U, Urbana-Champ	56	39	57	46	55	56	88	78	72	77	91	715
Minnesota,U-Minneapl	54	68	85	59	67	74	71	92	100	78	91	839
Columbia Univ/NY	74	85	68	62	63	78	73	81	65	72	86	807
Texas, U-Austin	48	51	43	49	53	53	62	60	73	76	84	652
Maryland, Univ of	59	40	52	73	63	70	72	66	70	56	79	700
Stanford Univ/CA	69	49	40	55	49	59	65	59	78	63	79	665
Cal S Prof Psy-L.A.	20	14	30	29	34	26	26	38	44	39	79	379
Mass Inst Technology	27	46	59	48	65	52	71	85	80	85	78	696
CUNY-Grad Sch&U Ctr	61	48	58	54	61	62	48	65	73	79	78	687
Pennsylvania, U of	60	46	58	75	72	77	50	58	81	73	78	728
Northwestern Univ/IL	51	53	45	42	49	53	57	60	62	61	75	608
Florida, Univ of	33	32	32	30	52	37	40	41	50	57	75	479
Georgia, Univ of	23	29	29	41	34	44	52	44	46	49	69	460
Michigan State Univ	46	48	49	56	62	53	46	62	59	80	67	628
Michigan, Univ of	90	53	79	82	108	89	84	92	95	76	67	915
Washington, U of	57	54	46	52	57	63	50	58	60	81	67	645
Purdue University/IN	36	37	41	39	54	47	59	68	70	49	66	566
Rutgers Univ/NJ	43	35	61	35	54	46	44	47	58	53	64	540
Texas A&M University	17	29	26	22	34	31	29	42	42	41	64	377
Penn State Univ	33	34	51	47	57	47	43	55	60	55	61	543
Harvard Univ/MA	57	53	52	65	61	67	50	65	43	60	58	631
Yale University/CT	35	40	35	39	38	44	47	38	54	50	56	476
New York University	72	83	74	82	66	75	70	68	74	70	55	789
Colorado, U-Boulder	33	41	40	33	46	41	36	40	42	48	55	455
Calif, U-Davis	25	49	53	42	47	55	54	59	72	70	55	581
Connecticut, Univ of	24	25	47	28	26	36	35	32	38	32	53	376
NC, U of-Chapel Hill	48	66	51	42	63	49	56	42	61	65	53	596
Arizona, Univ of	26	39	21	25	37	29	39	32	45	54	53	400
Mass, U of-Amherst	44	42	36	37	43	48	46	48	45	48	52	489
Chicago, Univ of/IL	41	39	47	46	55	53	52	58	44	57	52	544
Virginia, Univ of	19	18	19	24	33	25	36	24	36	34	51	319
SUNY at Buffalo	30	38	35	46	31	38	43	38	41	49	48	437
U S Internatl U/CA	43	56	70	60	80	55	30	26	29	35	48	532
Calif, U-San Diego	23	24	24	29	37	35	34	36	33	50	47	372
SUNY at Stony Brook	31	34	28	30	26	35	39	48	50	41	46	408
VA Poly Inst&State U	17	9	18	33	19	32	27	32	36	42	44	309
Southern Calif, U of	27	35	37	39	45	58	47	45	41	36	44	454
Rochester,Univ of/NY	29	32	23	30	23	19	20	29	26	29	43	303
Johns Hopkins U/MD	25	23	36	31	41	45	57	42	32	53	43	428
Tenn, U-Knoxville	15	23	29	22	27	33	22	35	35	30	43	314
LA St Univ & A&M C	9	23	13	11	15	10	14	26	27	23	42	213
Pittsburgh, Univ of	27	39	29	40	41	45	51	31	48	52	41	444
Temple University/PA	30	22	26	37	34	35	33	27	32	37	40	353
Iowa State Univ	22	35	27	29	29	35	44	38	40	64	40	403
Illinois,U-Chicago	6	17	25	20	18	22	24	27	43	35	39	276

See footnote at end of table.

Table 9. Top 100 doctorate-producing institutions for science and engineering doctorates by sex(1): 1979-89--continued

	Year of doctorate											
Institution	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1979-1989
FEMALE												
Kansas, Univ of	37	30	26	43	33	30	42	32	44	33	38	388
Boston University/MA	42	36	34	35	49	45	41	55	59	49	37	482
Princeton Univ/NJ	28	28	24	31	33	43	25	38	28	32	37	347
Hawaii, Univ of	24	15	20	21	24	20	27	32	35	22	37	277
Indiana U Bloomngton	35	26	44	40	40	43	38	33	34	49	36	418
Iowa, University of	15	13	19	24	22	24	14	25	32	30	36	254
Duke University/NC	23	51	43	43	51	32	38	30	42	25	36	414
Calif, U-Santa Barb	17	18	23	16	22	24	22	19	21	25	36	243
Kentucky, Univ of	13	17	8	17	21	19	18	16	24	31	35	219
Vanderbilt Univ/TN	9	17	20	17	15	15	27	20	25	23	35	223
Florida State Univ	30	24	24	26	33	19	23	24	30	31	34	298
Washington State U	11	19	18	24	23	26	20	36	29	23	34	263
Cal S Prof Psy-Alamd	24	20	42	18	23	28	27	24	36	31	34	307
NC State U-Raleigh	12	14	22	28	23	28	40	38	33	48	32	318
Brandeis Univ/MA	19	14	18	25	29	30	33	37	26	33	29	293
SUNY at Albany	11	18	9	13	25	18	31	25	21	29	29	229
Geo Washington U/DC	21	23	20	29	33	25	26	34	18	29	29	287
Oklahoma State Univ	15	10	19	16	20	20	17	18	21	26	29	211
Colorado State Univ	8	14	13	22	10	30	18	17	23	38	29	222
Cal Inst Technology	16	15	15	12	7	11	20	13	17	23	29	178
Washington Univ/MO	11	27	23	25	29	21	21	29	25	34	28	273
South Carolina, U of	14	15	16	24	16	18	20	25	19	39	28	234
Brown University/RI	18	20	14	18	20	20	25	27	26	29	27	244
Carnegie Mellon U/PA	6	4	11	11	9	20	16	19	16	20	27	159
Nebraska, U-Lincoln	21	18	22	27	24	22	28	35	39	40	27	303
Georgetown Univ/DC	22	20	24	21	21	26	14	23	26	21	27	245
Rice University/TX	6	12	8	10	16	18	11	23	12	18	27	161
Case Westrn Rsrve/OH	17	20	17	27	17	26	19	27	33	18	26	247
Kent State Univ/OH	11	13	20	21	18	16	20	16	19	22	26	202
New Mexico, Univ of	8	15	14	18	7	15	16	21	16	20	26	176
Oregon, Univ of	26	18	31	25	19	29	25	28	14	16	26	257
Calif,U-Irvine	10	20	20	22	10	18	14	29	14	21	26	204
Fordham Univ/NY	25	35	29	37	27	19	27	24	21	23	25	292
Wayne State Univ/MI	16	23	23	20	27	16	23	29	23	26	25	251
Emory Univ/GA	11	13	16	13	15	12	9	13	15	18	25	160
Miami, Univ of/FL	21	16	11	13	22	21	19	21	27	32	25	228
Arizona State Univ	9	15	13	18	16	17	16	17	22	19	25	187
Fielding Inst/CA	-	-	-	1	24	11	14	25	21	18	25	139
Cal S Prof Psy-S Dgo	15	19	15	11	25	18	30	20	11	16	25	205
Syracuse Univ/NY	29	27	17	21	27	21	22	24	25	32	24	269
Missouri, U-Columbia	37	26	13	24	27	24	25	25	28	42	24	295
Houston, U of/TX	10	16	18	16	17	23	17	15	13	18	24	187
Oregon State Univ	10	11	20	13	17	24	22	19	21	21	24	202
Southern Ill Univ	21	15	12	15	11	11	18	18	14	12	23	170
Delaware, Univ of	5	9	10	17	17	20	20	15	18	23	23	177
Utah, Univ of	16	16	16	26	27	18	17	35	22	26	23	242
Cal, U-San Francisco	9	19	13	17	22	23	13	28	19	20	23	206
Rhode Island, U of	11	9	11	15	17	19	24	10	16	20	22	174
Cincinnati, U of/OH	19	27	17	30	21	19	28	34	22	33	22	272
Adelphi Univ/NY	14	16	12	17	20	14	13	22	16	25	21	190
Rensselaer Poly I/NY	1	3	8	8	8	6	9	10	16	18	21	108
American Univ/DC	11	13	18	19	12	14	17	24	13	14	21	176
Oklahoma, U of	12	17	19	15	31	11	16	27	21	18	21	208

(1) The top 100 institutions are ranked according to S/E doctorate production in 1989.

SOURCE: Survey of Earned Doctorates

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Table 10. Institutions conferring science and engineering doctorates by major field and sex(1): 1989

Field of study

Institution	Total sci & eng	Physical Sciences			Earth atmos & mar	Math	Comp/ info sci	Agric & Biol Sci			Soc sci	Psych	Engineering(2)				Non-sci & eng(3)	Total all flds
		Sub-total	Phys& astr	Chem-istry				Sub-total	Agri sci	Biol sci			Sub-total	Chem	Elec	Mech		
TOTAL, MALE AND FEMALE																		
Calif, U-Berkeley	657	105	38	67	13	50	22	124	20	104	115	27	201	22	40	39	209	866
Wisconsin,U-Madison	483	71	30	41	23	21	9	139	51	88	100	22	98	12	15	23	205	688
Mass Inst Technology	468	69	41	28	33	34	15	47	-	47	48	5	217	29	35	43	24	492
Ill, U, Urbana-Champ	468	80	40	40	9	11	24	112	41	71	67	29	136	13	46	20	179	647
Stanford Univ/CA	412	67	47	20	20	16	23	38	-	38	63	12	173	11	60	28	125	537
Cornell Univ/NY	395	67	30	37	9	12	12	137	67	70	55	15	88	10	26	12	76	471
Ohio State Univ	371	47	21	26	5	13	14	111	26	85	46	38	97	13	27	17	231	602
Minnesota,U-Minneapl	360	38	12	26	8	18	10	105	39	66	54	52	75	21	12	19	178	538
Purdue University/IN	348	73	20	53	3	14	10	74	28	46	27	15	132	14	48	16	70	418
Michigan, Univ of	335	39	14	25	8	14	5	49	1	48	64	34	122	16	12	21	192	527
Calif, U-Los Angeles	334	56	26	30	22	11	11	80	-	80	71	24	59	1	16	4	157	491
Texas, U-Austin	329	67	36	31	14	9	11	37	-	37	64	20	107	12	24	18	251	580
Texas A&M University	310	37	3	34	20	7	6	92	49	43	32	18	98	17	10	13	111	421
Penn State Univ	289	46	9	37	14	11	8	59	19	40	26	30	95	6	9	20	138	427
Michigan State Univ	287	33	7	26	6	14	6	104	48	56	57	29	38	4	4	11	134	421
Pennsylvania, U of	272	44	24	20	2	3	11	66	-	66	80	24	42	7	8	9	148	420
Washington, U of	272	40	16	24	29	14	9	75	25	50	39	21	45	8	9	6	131	403
Northwestern Univ/IL	259	27	9	18	6	17	21	30	-	30	44	40	74	12	9	17	98	357
Florida, Univ of	259	47	13	34	2	3	2	86	38	48	27	32	60	5	15	9	83	342
Columbia Univ/NY	257	47	22	25	19	13	3	46	-	46	51	36	42	7	13	8	115	372
VA Poly Inst&State U	250	31	11	20	7	11	4	64	43	21	19	17	97	7	12	29	99	349
Calif, U-Davis	247	36	5	31	5	8	4	135	16	119	18	6	35	4	6	8	23	270
Maryland, Univ of	244	29	18	11	5	13	11	47	13	34	40	42	57	3	24	8	148	392
Arizona, Univ of	237	64	35	29	11	8	8	64	24	40	21	20	41	3	11	8	84	321
Harvard Univ/MA	221	38	21	17	10	11	7	78	-	78	67	6	4	-	-	-	235	456
Iowa State Univ	221	35	13	22	7	11	3	68	38	30	33	8	56	5	4	10	46	267
NC State U-Raleigh	199	13	7	6	3	6	1	76	40	36	14	10	76	7	7	16	33	232
Chicago, Univ of/IL	195	46	25	21	6	9	1	43	-	43	68	22	-	-	-	-	115	310
Yale University/CT	193	49	23	26	3	10	9	40	5	35	45	19	18	3	5	7	124	317
Southern Calif, U of	190	20	4	16	4	1	6	18	-	18	34	27	80	1	35	3	170	360
Mass, U of-Amherst	185	42	9	33	5	9	9	31	15	16	29	17	43	17	8	2	144	329
Colorado, U-Boulder	183	40	20	20	13	2	4	28	-	28	27	22	47	6	17	6	85	268
Rutgers Univ/NJ	181	29	11	18	10	6	3	63	12	51	22	17	31	8	2	6	117	298
NC, U of-Chapel Hill	174	30	9	21	8	10	3	61	-	61	32	25	5	-	-	-	125	299
Princeton Univ/NJ	172	43	26	17	9	18	3	15	-	15	36	7	41	15	3	4	55	227
Calif, U-San Diego	172	32	17	15	17	11	4	49	-	49	25	7	27	3	11	-	22	194
Georgia, Univ of	169	16	1	15	2	3	-	97	30	67	19	32	-	-	-	-	171	340
SUNY at Buffalo	158	25	6	19	1	5	4	39	-	39	21	22	41	12	13	4	121	279
CUNY-Grad Sch&U Ctr	157	27	14	13	3	1	3	30	-	30	32	53	8	1	4	2	77	234
Johns Hopkins U/MD	156	24	11	13	7	6	2	60	-	60	27	3	27	4	3	1	72	228
Virginia, Univ of	150	32	12	20	2	6	2	33	-	33	15	27	33	6	2	3	91	241
Colorado State Univ	149	14	3	11	10	11	-	61	25	36	7	11	35	-	6	4	24	173
SUNY at Stony Brook	147	33	14	19	16	9	2	31	-	31	18	23	15	-	7	3	42	189
Pittsburgh, Univ of	147	35	12	23	2	7	3	20	-	20	27	22	31	8	9	-	216	363
Rochester,Univ of/NY	143	43	22	21	3	7	7	38	-	38	19	11	15	9	4	1	65	208
LA St Univ & A&M C	142	23	5	18	8	7	10	47	23	24	14	19	14	5	2	2	64	206
New York University	140	16	12	4	2	13	17	30	-	30	24	37	1	-	-	-	233	373
Case Westrn Rsrve/OH	138	27	10	17	-	1	7	19	-	19	4	6	74	10	7	8	38	176
Indiana U Bloomngton	136	33	12	21	2	3	7	37	-	37	46	8	-	-	-	-	192	328
Cal Inst Technology	134	57	27	30	14	7	3	11	-	11	3	-	39	10	9	4	-	134
Carnegie Mellon U/PA	133	12	6	6	-	10	14	7	-	7	8	6	76	14	24	9	25	158
Kansas, Univ of	133	13	4	9	3	-	3	42	-	42	22	33	17	2	8	1	91	224
Nebraska, U-Lincoln	130	20	3	17	2	3	3	47	23	24	20	25	10	-	-	-	114	244
Connecticut, Univ of	128	20	2	18	-	8	2	26	1	25	27	26	19	2	6	1	69	197
Hawaii, Univ of	127	19	9	10	13	4	-	32	10	22	48	9	2	-	-	-	35	162
Iowa, University of	122	19	4	15	1	4	2	35	-	35	17	23	21	4	1	5	165	287
Tenn, U-Knoxville	122	13	6	7	2	3	-	37	8	29	21	25	21	2	3	1	87	209
Missouri, U-Columbia	121	4	1	3	3	3	-	57	27	30	8	18	28	5	7	5	115	236
Calif, U-Santa Barb	121	26	18	8	9	5	-	25	-	25	17	16	23	4	14	2	52	173
Utah, Univ of	120	17	3	14	7	6	4	15	-	15	13	21	37	8	7	4	54	174
Boston University/MA	119	17	13	4	2	6	4	27	-	27	32	28	3	-	-	-	180	299
Georgia Inst Tech	116	11	2	9	5	4	9	6	-	6	-	3	78	8	11	19	6	122
Kentucky, Univ of	116	10	3	7	2	4	-	44	20	24	19	23	14	2	3	4	66	182
Washington State U	116	6	2	4	4	5	4	48	14	34	23	16	10	1	1	3	35	151
Oregon State Univ	115	6	2	4	3	2	7	68	41	27	7	1	21	4	1	8	27	142
Rensselaer Poly I/NY	113	17	5	12	3	7	7	-	-	-	6	-	73	8	15	14	7	120
Cincinnati, U of/OH	113	25	4	21	6	4	1	25	-	25	11	15	26	3	5	7	83	196
Duke University/NC	112	16	5	11	1	-	7	42	-	42	13	10	23	-	7	2	36	148
Cal S Prof Psy-L.A.	112	-	-	-	-	-	-	-	-	-	-	112	-	-	-	-	-	112
Illinois,U-Chicago	110	14	1	13	-	6	4	33	-	33	15	12	26	3	2	14	47	157
Brown University/RI	108	32	17	15	10	19	4	10	-	10	18	5	10	-	3	4	39	147
Oklahoma State Univ	104	6	2	4	2	2	3	27	13	14	16	23	25	8	2	4	110	214
Syracuse Univ/NY	103	17	7	10	2	4	9	7	-	7	28	12	24	4	9	1	63	166
Arizona State Univ	99	21	9	12	1	1	5	13	-	13	6	17	35	3	16	7	95	194
Washington Univ/MO	97	12	3	9	4	5	2	32	-	32	19	7	16	6	2	4	21	118
Rice University/TX	97	26	11	15	9	6	2	6	-	6	15	6	27	6	4	4	23	120
Temple University/PA	96	7	2	5	-	4	2	21	-	21	11	51	-	-	-	-	196	292
Kansas State Univ	96	12	1	11	-	5	4	59	35	24	5	3	8	3	-	1	41	137
Houston, U of/TX	95	13	3	10	5	4	4	9	-	9	5	23	32	13	3	6	59	154
Florida State Univ	93	13	7	6	7	4	4	14	-	14	21	30	-	-	-	-	156	249

See footnotes at end of table.

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Table 10. Institutions conferring science and engineering doctorates by major field and sex(1): 1989--continued

	Field of study																	
		Physical Sciences						Agric & Biol Sci					Engineering(2)					
Institution	Total sci & eng	Sub-total	Phys& astr	Chem-istry	Earth atmos & mar	Math	Comp/ info sci	Sub-total	Agri sci	Biol sci	Soc sci	Psych	Sub-total	Chem	Elec	Mech	Non-sci & eng(3)	Total all flds
TOTAL, MALE AND FEMALE																		
Delaware, Univ of	91	16	3	13	8	7	4	8	1	7	13	9	26	14	6	2	21	112
U S Internatl U/CA	90	-	-	-	-	-	-	-	-	-	1	89	-	-	-	-	47	137
Vanderbilt Univ/TN	88	6	1	5	-	2	1	24	-	24	14	25	16	2	3	2	41	129
Calif,U-Irvine	87	20	9	11	-	3	5	21	-	21	13	4	21	-	14	3	20	107
Wayne State Univ/MI	86	25	6	19	-	2	3	20	-	20	11	13	12	3	3	3	59	145
Geo Washington U/DC	86	3	1	2	1	3	4	13	-	13	21	14	27	-	4	4	71	157
New Mexico, Univ of	86	17	9	8	5	5	-	11	-	11	6	22	20	-	10	3	53	139
Oregon, Univ of	84	14	10	4	1	5	2	13	-	13	30	19	-	-	-	-	111	195
Texas Tech Univ	82	9	1	8	2	1	-	24	13	11	10	20	16	1	4	2	59	141
Oklahoma, U of	80	10	3	7	4	1	2	17	-	17	14	11	21	5	2	4	54	134
South Carolina, U of	78	15	4	11	7	3	-	16	-	16	12	16	9	-	2	4	107	185
Auburn University/AL	78	9	3	6	-	3	-	16	14	2	6	22	22	5	2	2	36	114
Notre Dame, U of/IN	75	13	6	7	-	6	-	11	-	11	17	6	22	11	6	2	24	99
SUNY at Albany	70	11	7	4	5	2	1	7	-	7	29	15	-	-	-	-	62	132
Lehigh University/PA	68	7	3	4	2	6	3	7	-	7	3	2	38	9	2	5	24	92
Clemson Univ/SC	68	8	5	3	-	6	2	23	7	16	4	-	25	1	4	6	9	77
Emory Univ/GA	67	19	3	16	-	2	-	25	-	25	5	16	-	-	-	-	41	108
Miami, Univ of/FL	67	6	1	5	7	2	-	13	-	13	2	28	9	-	3	3	35	102
Calif, U-Riverside	67	11	4	7	-	2	-	38	12	26	11	5	-	-	-	-	16	83
Rhode Island, U of	66	4	-	4	13	3	1	13	3	10	1	8	23	3	11	6	9	75
West Virginia Univ	65	10	5	5	2	-	-	19	5	14	7	10	17	3	2	1	47	112
Southern Ill Univ	63	6	-	6	1	4	-	13	2	11	15	24	-	-	-	-	84	147
Utah State Univ	63	4	2	2	3	1	-	25	10	15	6	11	13	1	-	-	12	75
Georgetown Univ/DC	61	8	2	6	-	-	-	22	-	22	31	-	-	-	-	-	20	81
Cal S Prof Psy-Alamd	61	-	-	-	-	-	-	-	-	-	-	61	-	-	-	-	-	61
Kent State Univ/OH	57	7	5	2	-	2	-	11	-	11	15	22	-	-	-	-	60	117
Brandeis Univ/MA	55	12	7	5	-	6	-	18	-	18	18	1	-	-	-	-	15	70
Texas,U-Dallas	55	15	13	2	17	3	3	6	-	6	7	2	2	-	-	-	17	72
Texas,U-Arlington	53	13	2	11	-	12	5	1	-	1	2	2	18	-	4	3	15	68
American Univ/DC	52	6	3	3	-	1	-	1	-	1	37	7	-	-	-	-	19	71
Akron, U of/OH	51	19	-	19	-	-	-	1	-	1	4	10	17	3	1	2	29	80
Brigham Young U/UT	51	7	3	4	-	-	-	6	-	6	4	14	20	7	2	5	67	118
Cal S Prof Psy-S Dgo	50	-	-	-	-	-	-	-	-	-	-	50	-	-	-	-	-	50
North Texas, Univ of	49	8	1	7	-	4	6	11	-	11	6	14	-	-	-	-	101	150
Cal, U-San Francisco	49	11	-	11	-	-	1	28	-	28	6	2	1	-	-	-	23	72
New Mexico State U	48	7	5	2	-	3	4	20	14	6	-	6	8	1	4	-	14	62
Hofstra Univ/NY	47	-	-	-	-	-	-	-	-	-	-	47	-	-	-	-	15	62
Wyoming, Univ of	47	8	4	4	4	4	-	12	3	9	5	7	7	-	4	2	12	59
New Sch Soc Rsch/NY	44	-	-	-	-	-	-	-	-	-	22	22	-	-	-	-	-	44
SUNY at Binghamton	44	6	-	6	-	2	1	2	-	2	26	6	1	-	-	-	20	64
Alabama, Univer of	44	13	4	9	1	1	-	5	-	5	3	9	12	2	3	3	82	126
Fordham Univ/NY	43	-	-	-	-	-	-	3	-	3	12	28	-	-	-	-	79	122
St Louis Univ/MO	43	-	-	-	8	1	-	13	-	13	1	20	-	-	-	-	48	91
Howard University/DC	43	6	1	5	-	4	-	9	-	9	13	9	2	-	1	-	18	61
Sthrn Methodist U/TX	43	-	-	-	-	4	6	1	-	1	11	-	21	-	11	3	2	45
Idaho, Univ of	43	6	3	3	4	5	-	13	8	5	-	-	15	3	5	3	14	57
Tufts University/MA	41	6	2	4	-	-	-	14	-	14	13	4	4	-	-	2	9	50
Catholic U Amer/DC	41	7	6	1	-	-	-	2	-	2	9	16	7	-	-	5	70	111
South Florida, U of	41	4	-	4	2	2	-	8	-	8	2	17	6	1	1	1	33	74
Fielding Inst/CA	41	-	-	-	-	-	-	-	-	-	1	40	-	-	-	-	9	50
Polytechnic Univ/NY	40	13	2	11	-	1	7	-	-	-	-	-	19	3	4	2	2	42
Mississippi State U	40	2	-	2	-	-	1	20	14	6	7	1	9	-	3	1	45	85
Colorado Sch Mines	40	3	2	1	14	-	-	-	-	-	10	-	13	3	-	-	3	43
Vermont, U of	39	9	1	8	-	-	-	16	-	16	-	11	3	-	1	1	4	43
Northeastern U/MA	39	15	3	12	-	3	-	2	-	2	5	5	9	-	6	-	14	53
Wisconsin,U-Milwauke	39	8	2	6	1	2	1	4	-	4	14	8	1	-	-	-	26	65
Missouri,U-Rolla	39	8	2	6	-	2	4	-	-	-	-	-	25	1	2	5	-	39
Loyola U Chicago/IL	38	5	-	5	-	-	-	8	-	8	4	21	-	-	-	-	46	84
Alabama,U-Birmingham	38	4	1	3	-	1	2	22	-	22	-	7	2	-	-	-	37	75
Illinois Inst Tech	37	3	1	2	-	2	3	2	-	2	-	9	18	3	5	3	1	38
Drexel University/PA	36	8	5	3	1	1	-	2	-	2	-	-	24	2	6	5	7	43
Ohio University	36	6	5	1	-	2	-	7	-	7	-	16	5	2	2	-	61	97
Louisville, U of/KY	36	2	-	2	-	-	-	17	-	17	1	12	4	4	-	-	11	47
Arkansas,U-Fayettvle	35	4	2	2	-	3	-	14	9	5	-	8	6	1	1	-	49	84
Tulane U of LA	35	3	1	2	-	-	2	8	-	8	9	8	5	2	-	-	28	63
Calif, U-Santa Cruz	35	9	7	2	7	2	2	10	-	10	-	5	-	-	-	-	11	46
North Dakota St Univ	34	15	4	11	-	-	-	16	12	4	-	-	3	-	-	-	-	34
Adelphi Univ/NY	33	-	-	-	-	1	-	-	-	-	-	32	-	-	-	-	26	59
VA Commwlth U Med C	33	2	-	2	-	1	-	30	-	30	-	-	-	-	-	-	4	37
Clarkson Univ/NY	32	5	2	3	-	2	-	-	-	-	-	-	25	5	8	4	-	32
Georgia State Univ	32	-	-	-	-	-	-	3	-	3	4	25	-	-	-	-	74	106
Southern Miss, U of	32	5	-	5	-	-	-	5	-	5	1	21	-	-	-	-	48	80
New Hampshire, U of	30	6	3	3	1	1	-	9	2	7	9	2	2	-	-	-	6	36
VA Commonwealth Univ	30	6	-	6	-	-	-	-	-	-	9	15	-	-	-	-	10	40
Dartmouth College/NH	29	7	5	2	2	5	-	7	-	7	-	7	1	-	-	-	-	29
Boston College/MA	29	4	2	2	-	-	-	5	-	5	7	13	-	-	-	-	63	92
Old Dominion Univ/VA	29	3	1	2	2	1	1	4	-	4	3	4	11	-	3	8	3	32
Maine, U-Orono	28	4	1	3	-	-	-	5	3	2	1	13	5	2	-	-	8	36
Denver, Univ of/CO	28	4	1	3	-	-	-	4	-	4	8	12	-	-	-	-	50	78
Nova University/FL	27	-	-	-	1	-	12	-	-	-	3	11	-	-	-	-	255	282

See footnotes at end of table.

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Table 10. Institutions conferring science and engineering doctorates by major field and sex(1): 1989--continued

	Field of study																	
		Physical Sciences						Agric & Biol Sci					Engineering(2)					
Institution	Total sci & eng	Sub-total	Phys& astr	Chem-istry	Earth atmos & mar	Math	Comp/ info sci	Sub-total	Agri sci	Biol sci	Soc sci	Psych	Sub-total	Chem	Elec	Mech	Non-sci & eng(3)	Total all flds
TOTAL, MALE AND FEMALE																		
St Johns U-Queens/NY	26	1	-	1	-	-	-	8	-	8	-	17	-	-	-	-	22	48
Stevens Inst Tech/NJ	26	6	3	3	-	-	2	-	-	-	-	3	15	5	2	2	-	26
Tex U Swstrn Med Ctr	25	-	-	-	-	-	-	18	-	18	-	7	-	-	-	-	-	25
Rockefeller Univ/NY	24	2	2	-	-	-	-	22	-	22	-	-	-	-	-	-	-	24
Tex U Hlth Sci-Houst	24	-	-	-	-	-	-	23	-	23	-	-	1	-	-	-	19	43
Yeshiva Univ/NY	23	-	-	-	-	-	-	-	-	-	-	23	-	-	-	-	4	27
Western Michigan U	23	1	-	1	-	5	-	-	-	-	3	14	-	-	-	-	29	52
Memphis State U/TN	23	2	-	2	-	1	-	3	-	3	-	17	-	-	-	-	41	64
Mississippi, Univ of	23	5	3	2	-	-	-	2	-	2	-	9	7	3	1	1	40	63
Texas Womans Univ	23	-	-	-	-	-	-	6	-	6	6	11	-	-	-	-	73	96
Clark University/MA	22	1	1	-	-	-	-	1	-	1	13	7	-	-	-	-	3	25
Yeshiva-Einst Med/NY	22	-	-	-	-	-	-	22	-	22	-	-	-	-	-	-	2	24
Northern Ill Univ	22	4	-	4	1	1	-	1	-	1	9	6	-	-	-	-	75	97
Montana State Univ	22	12	6	6	-	1	-	6	3	3	1	-	2	1	1	-	16	38
CA Inst Integrl Stds	22	-	-	-	-	-	-	-	-	-	-	22	-	-	-	-	2	24
Miami University/OH	21	4	-	4	1	-	-	6	-	6	1	9	-	-	-	-	16	37
Toledo, Univ of/OH	21	2	-	2	-	1	-	3	-	3	-	4	11	1	-	-	35	56
Baylor Coll Med/TX	21	-	-	-	-	-	-	21	-	21	-	-	-	-	-	-	2	23
Cal S Prof Psy-Fresn	21	-	-	-	-	-	-	-	-	-	-	21	-	-	-	-	-	21
North Dakota, U of	20	5	1	4	1	-	-	6	1	5	-	8	-	-	-	-	9	29
Nevada, Univ of	20	3	1	2	3	-	-	5	-	5	-	7	2	-	-	-	8	28
Wright Inst-Berkl/CA	20	-	-	-	-	-	-	-	-	-	-	20	-	-	-	-	-	20
NC, U of-Greensboro	19	-	-	-	-	-	-	4	-	4	3	12	-	-	-	-	63	82
Alabama,U-Huntsville	19	2	2	-	-	-	8	-	-	-	-	-	9	-	6	1	-	19
Lowell, Univ of/MA	18	15	4	11	-	-	-	2	-	2	-	-	1	-	-	-	4	22
Clark Atlanta U/GA	18	-	-	-	-	-	-	5	-	5	12	1	-	-	-	-	15	33
Tex U Med Br-Galvstn	18	-	-	-	-	-	-	18	-	18	-	-	-	-	-	-	-	18
Wesleyan Univ/CT	17	7	-	7	-	4	-	6	-	6	-	-	-	-	-	-	3	20
SUNY Envr Sci Frstry	17	1	-	1	1	-	-	15	9	6	-	-	-	-	-	-	-	17
Bowling Green S U/OH	17	-	-	-	-	1	-	-	-	-	4	12	-	-	-	-	30	47
Med Univ So Carolina	17	-	-	-	-	-	-	17	-	17	-	-	-	-	-	-	1	18
N Mex I Mining&Tech	17	4	4	-	10	-	-	-	-	-	-	-	3	-	-	-	-	17
Portland State U/OR	17	2	1	1	3	-	-	-	-	-	9	-	3	-	2	-	18	35
Claremnt Grad Sch/CA	17	-	-	-	-	-	-	1	-	1	6	10	-	-	-	-	50	67
Ball State Univ/IN	16	-	-	-	-	-	-	1	-	1	3	12	-	-	-	-	43	59
Missouri,U-Kans City	16	2	-	2	-	-	-	-	-	-	-	14	-	-	-	-	25	41
Fuller Theol Sem/CA	16	-	-	-	-	-	-	-	-	-	3	13	-	-	-	-	9	25
Medical Coll Georgia	15	-	-	-	-	-	-	15	-	15	-	-	-	-	-	-	-	15
Cornell U Med Col/NY	14	-	-	-	-	-	-	14	-	14	-	-	-	-	-	-	-	14
New Jersey Inst Tech	14	-	-	-	-	-	-	-	-	-	-	-	14	4	1	3	-	14
Rutgers U-Newark/NJ	14	6	-	6	-	-	-	1	-	1	2	5	-	-	-	-	2	16
Hlth Sci U-Chi Md/IL	14	-	-	-	1	-	-	2	-	2	-	11	-	-	-	-	-	14
Sowestern LA, U of	14	-	-	-	-	6	6	1	-	1	-	-	1	-	-	-	1	15
Montana, Univ of	14	-	-	-	2	2	-	3	-	3	-	7	-	-	-	-	5	19
Caribbean C Adv S/PR	14	-	-	-	-	-	-	-	-	-	-	14	-	-	-	-	-	14
Worcester Poly I/MA	13	1	-	1	-	-	2	-	-	-	-	-	10	2	2	5	-	13
New York Medical Col	13	-	-	-	-	-	-	13	-	13	-	-	-	-	-	-	-	13
Bryn Mawr Coll/PA	13	1	1	-	-	-	-	3	-	3	1	8	-	-	-	-	19	32
Michigan Tech Univ	13	3	2	1	1	-	-	2	1	1	-	-	7	-	-	-	-	13
Marquette Univ/WI	13	4	-	4	-	1	-	4	-	4	-	2	2	-	-	1	21	34
Wichita St Univ/KS	13	-	-	-	-	-	-	-	-	-	-	-	13	-	3	2	5	18
Rand Grad School/CA	13	-	-	-	-	-	-	-	-	-	13	-	-	-	-	-	1	14
LIU-Brooklyn Cmps/NY	12	-	-	-	-	-	-	-	-	-	-	12	-	-	-	-	-	12
Fairleigh Dickn U/NJ	12	-	-	-	-	-	-	-	-	-	-	12	-	-	-	-	-	12
Med Coll Ohio Toledo	12	-	-	-	-	-	-	12	-	12	-	-	-	-	-	-	2	14
Indiana State Univ	12	-	-	-	-	-	-	3	-	3	2	7	-	-	-	-	8	20
South Dakota, U of	12	-	-	-	-	-	-	4	-	4	-	8	-	-	-	-	22	34
Maryland,U, Sch Med	12	1	-	1	-	-	-	11	-	11	-	-	-	-	-	-	20	32
Maryland,U-Balt Cnty	12	-	-	-	-	1	1	6	-	6	1	3	-	-	-	-	1	13
George Mason U/VA	12	-	-	-	-	1	5	1	-	1	4	-	1	-	-	-	11	23
Florida Inst Tech	12	1	1	-	1	-	-	2	-	2	-	5	3	-	-	1	1	13
Ark U-Med Sciences	12	-	-	-	-	-	-	12	-	12	-	-	-	-	-	-	-	12
Northern Colorado,U	12	-	-	-	-	5	-	-	-	-	3	4	-	-	-	-	47	59
Oregon Health Sci U	12	-	-	-	-	-	-	10	-	10	-	2	-	-	-	-	-	12
Alaska, Univ of	12	1	1	-	5	1	-	4	1	3	1	-	-	-	-	-	1	13
Duquesne Univ/PA	11	3	-	3	-	-	-	-	-	-	-	8	-	-	-	-	10	21
Depaul University/IL	11	-	-	-	-	-	-	-	-	-	-	11	-	-	-	-	-	11
Detroit, U of/MI	11	1	-	1	-	-	-	-	-	-	-	7	3	-	-	3	-	11
Inst Paper Chem/WI	11	5	-	5	-	-	-	1	1	-	-	-	5	2	-	-	-	11
Union-Albany Med/NY	10	-	-	-	-	-	-	10	-	10	-	-	-	-	-	-	-	10
N.J. Med Sch-Newark	10	-	-	-	-	-	-	10	-	10	-	-	-	-	-	-	-	10
Seton Hall Univ/NJ	10	2	-	2	-	-	-	-	-	-	-	8	-	-	-	-	12	22
Cleveland St Univ/OH	10	1	-	1	-	-	-	4	-	4	-	-	5	-	2	-	-	10
Med Coll Wisconsin	10	-	-	-	-	-	-	10	-	10	-	-	-	-	-	-	-	10
Missouri,U-St Louis	10	4	-	4	-	-	-	-	-	-	-	6	-	-	-	-	8	18
South Dakota State U	10	-	-	-	-	-	-	9	9	-	1	-	-	-	-	-	-	10
Oregon Graduate Ctr	10	3	3	-	1	-	1	1	-	1	-	-	4	-	2	-	-	10
Med Coll Pensylvania	9	-	-	-	-	-	-	9	-	9	-	-	-	-	-	-	-	9
Dayton, U of/OH	9	-	-	-	-	-	-	1	-	1	-	-	8	-	6	2	-	9
William & Mary, C/VA	9	3	3	-	5	-	-	1	-	1	-	-	-	-	-	-	23	32

See footnotes at end of table.

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Table 10. Institutions conferring science and engineering doctorates by major field and sex(1): 1989--continued

	Field of study																	
	Total	Physical Sciences			Earth		Comp/	Agric & Biol Sci					Engineering(2)				Non-	Total
Institution	sci & eng	Sub-total	Phys& astr	Chem-istry	atmos & mar	Math	info sci	Sub-total	Agri sci	Biol sci	Soc sci	Psych	Sub-total	Chem	Elec	Mech	sci & eng(3)	all flds
TOTAL, MALE AND FEMALE																		
Wake Forest Univ/NC	9	-	-	-	-	-	-	9	-	9	-	-	-	-	-	-	-	9
Cntrl Florida, U/FL	9	-	-	-	-	-	7	-	-	-	-	-	2	-	1	1	12	21
Louisiana Tech Univ	9	-	-	-	-	-	-	-	-	-	-	-	9	1	-	1	16	25
Sam Houston St U/TX	9	-	-	-	-	-	-	-	-	-	9	-	-	-	-	-	-	9
Tex U Hlth Sci-S Ant	9	-	-	-	-	-	-	9	-	9	-	-	-	-	-	-	-	9
Loma Linda Univ/CA	9	-	-	-	-	-	-	9	-	9	-	-	-	-	-	-	18	27
Pacfc Grad Psych/CA	9	-	-	-	-	-	-	-	-	-	-	9	-	-	-	-	-	9
PR, U-Rio Piedras	9	5	1	4	-	-	-	1	-	1	1	2	-	-	-	-	11	20
Hahnemann Univ/PA	8	-	-	-	-	-	-	5	-	5	-	3	-	-	-	-	-	8
Maharishi Intl U/IA	8	2	2	-	-	-	-	3	-	3	-	3	-	-	-	-	-	8
Unfrm Svc U Hlth/MD	8	-	-	-	-	-	-	7	-	7	-	1	-	-	-	-	-	8
Mississippi U-Med Ct	8	-	-	-	-	-	-	8	-	8	-	-	-	-	-	-	-	8
Baylor Univ/TX	8	8	4	4	-	-	-	-	-	-	-	-	-	-	-	-	17	25
Texas Christian Univ	8	1	1	-	-	-	-	1	-	1	-	6	-	-	-	-	3	11
Thomas Jeffrson U/PA	7	-	-	-	-	-	-	7	-	7	-	-	-	-	-	-	-	7
SUNY Hlth Sci-Brklyn	6	-	-	-	-	-	-	6	-	6	-	-	-	-	-	-	1	7
Phila C Pharm&Sci/PA	6	4	-	4	-	-	-	2	-	2	-	-	-	-	-	-	2	8
Rush University/IL	6	-	-	-	-	-	-	4	-	4	-	2	-	-	-	-	4	10
Oakland Univ/MI	6	3	2	1	-	-	-	-	-	-	-	-	3	-	-	-	-	6
Florida Atlantic U	6	-	-	-	-	-	-	-	-	-	-	1	5	-	1	1	12	18
Tennessee Tech U	6	-	-	-	-	-	-	-	-	-	-	-	6	1	3	1	-	6
Tenn,U Ctr Hth Sci	6	-	-	-	-	-	-	6	-	6	-	-	-	-	-	-	2	8
South Alabama, U	6	-	-	-	-	-	-	6	-	6	-	-	-	-	-	-	1	7
LA St U, S Med-N Orl	6	-	-	-	-	-	-	6	-	6	-	-	-	-	-	-	1	7
Dallas, Univ of/TX	6	-	-	-	-	-	-	-	-	-	-	6	-	-	-	-	-	6
Alfred University/NY	5	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	5
SUNY Hlth Sci-Syracu	5	-	-	-	-	-	-	5	-	5	-	-	-	-	-	-	-	5
E Crlna U Sch Med/NC	5	-	-	-	-	-	-	5	-	5	-	-	-	-	-	-	-	5
Geo Peabody Col/TN	5	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	78	83
Texas, U-El Paso	5	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	5
Northern Arizona U	5	-	-	-	-	-	-	5	-	5	-	-	-	-	-	-	34	39
Saybrook Inst/CA	5	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	5
Air Force I Tech/OH	4	1	1	-	-	-	-	-	-	-	-	-	3	-	1	-	-	4
Wright State Univ/OH	4	-	-	-	-	-	-	4	-	4	-	-	-	-	-	-	-	4
Meharry Med Coll/TN	4	-	-	-	-	-	-	4	-	4	-	-	-	-	-	-	1	5
S F Austin St U/TX	4	-	-	-	1	-	-	3	3	-	-	-	-	-	-	-	-	4
Biola Univ/CA	4	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	3	7
Naval Postgrad S/CA	4	-	-	-	-	2	1	-	-	-	-	-	1	-	-	-	-	4
Mass, U Med S-Wrcstr	3	-	-	-	-	-	-	3	-	3	-	-	-	-	-	-	2	5
Indiana Univ of Pa	3	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	13	16
S Dakota S Mine&Tech	3	-	-	-	1	-	-	-	-	-	-	-	2	-	-	-	-	3
Creighton Univ/NE	3	-	-	-	-	-	-	3	-	3	-	-	-	-	-	-	-	3
LSU, Sch Med-Shrvprt	3	-	-	-	-	-	-	3	-	3	-	-	-	-	-	-	-	3
New Orleans,U of/LA	3	1	-	1	-	-	-	-	-	-	1	1	-	-	-	-	12	15
NE Louisiana Univ	3	-	-	-	-	-	-	3	-	3	-	-	-	-	-	-	2	5
Tulsa, Univ of/OK	3	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	8	11
Mass, U-Boston	2	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	2
Union University/NY	2	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	2	4
Villanova Univ/PA	2	2	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Illinois St U-Normal	2	-	-	-	-	1	-	1	-	1	-	-	-	-	-	-	41	43
East Texas State U	2	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	56	58
Idaho State Univ	2	-	-	-	-	1	-	1	-	1	-	-	-	-	-	-	2	4
Pace University/NY	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	4	5
Annenbrg Res Inst/PA	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1
Andrews Univ/MI	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	18	19
Maryland,U-E Shore	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1
East Tenn State Univ	1	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	4	5
Lamar University/TX	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	1
Pacific, U of/CA	1	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	11	12
Santa Clara Univ/CA	1	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	1

See footnotes at end of table.

Table 10. Institutions conferring science and engineering doctorates by major field and sex(1): 1989--continued

	Field of study																	
		Physical Sciences						Agric & Biol Sci					Engineering(2)					
Institution	Total sci & eng	Sub-total	Phys& astr	Chem-istry	Earth atmos & mar	Math	Comp/ info sci	Sub-total	Agri sci	Biol sci	Soc sci	Psych	Sub-total	Chem	Elec	Mech	Non-sci & eng(3)	Total all flds
MALE																		
Calif, U-Berkeley	491	84	35	49	8	44	21	76	16	60	67	9	182	19	38	39	89	580
Mass Inst Technology	390	59	37	22	23	31	13	30	-	30	37	4	193	25	33	42	21	411
Ill, U, Urbana-Champ	377	71	40	31	6	10	21	78	33	45	50	15	126	11	44	18	101	478
Wisconsin,U-Madison	371	65	28	37	17	18	8	87	36	51	76	7	93	12	15	23	101	472
Stanford Univ/CA	333	56	42	14	16	13	19	28	-	28	40	3	158	9	56	26	60	393
Cornell Univ/NY	284	52	26	26	7	9	11	85	49	36	38	5	77	8	23	11	38	322
Purdue University/IN	282	57	16	41	2	13	7	52	22	30	21	7	123	12	48	16	36	318
Ohio State Univ	278	39	21	18	4	12	14	74	22	52	33	16	86	12	24	17	113	391
Minnesota,U-Minneapl	269	31	12	19	8	16	9	78	29	49	39	20	68	19	12	18	95	364
Michigan, Univ of	268	31	12	19	6	12	5	34	1	33	43	20	117	16	12	21	107	375
Texas A&M University	246	28	3	25	17	5	2	71	37	34	26	8	89	16	10	12	66	312
Texas, U-Austin	245	56	32	24	13	6	9	20	-	20	37	7	97	9	20	18	105	350
Calif, U-Los Angeles	231	41	24	17	16	9	10	50	-	50	36	13	56	-	16	4	82	313
Penn State Univ	228	37	9	28	9	8	8	40	14	26	15	20	91	6	9	20	76	304
Michigan State Univ	220	29	7	22	6	12	5	75	38	37	42	17	34	4	4	9	82	302
VA Poly Inst&State U	206	24	10	14	6	10	4	50	38	12	14	8	90	6	11	29	50	256
Washington, U of	205	33	14	19	24	11	8	48	19	29	26	13	42	8	7	6	49	254
Pennsylvania, U of	194	38	24	14	1	3	10	42	-	42	60	5	35	5	8	9	77	271
Calif, U-Davis	192	28	4	24	5	7	3	99	15	84	14	2	34	4	5	8	14	206
Northwestern Univ/IL	184	24	8	16	4	13	20	13	-	13	21	20	69	11	9	17	47	231
Florida, Univ of	184	36	11	25	1	3	2	60	28	32	13	13	56	5	15	9	41	225
Arizona, Univ of	184	56	32	24	10	8	6	43	20	23	13	9	39	3	11	7	46	230
Iowa State Univ	181	28	11	17	6	9	3	52	31	21	24	4	55	4	4	10	23	204
Columbia Univ/NY	171	37	20	17	14	12	3	20	-	20	31	16	38	7	12	8	60	231
NC State U-Raleigh	167	10	6	4	3	5	1	61	32	29	12	3	72	5	7	16	16	183
Maryland, Univ of	165	24	16	8	5	11	9	24	9	15	25	14	53	3	23	8	54	219
Harvard Univ/MA	163	33	18	15	10	10	6	51	-	51	48	2	3	-	-	-	129	292
Southern Calif, U of	146	14	4	10	4	1	6	8	-	8	23	13	77	1	34	3	105	251
Chicago, Univ of/IL	143	42	23	19	5	8	1	25	-	25	50	12	-	-	-	-	70	213
Yale University/CT	137	39	22	17	1	10	8	24	4	20	31	7	17	3	5	6	66	203
Princeton Univ/NJ	135	38	26	12	9	18	3	7	-	7	23	3	34	12	2	4	33	168
Mass, U of-Amherst	133	29	8	21	5	7	7	18	12	6	20	8	39	15	8	2	64	197
Colorado, U-Boulder	128	31	18	13	11	2	3	13	-	13	17	9	42	5	17	6	43	171
Calif, U-San Diego	125	27	15	12	12	9	3	31	-	31	15	6	22	2	10	-	13	138
NC, U of-Chapel Hill	121	26	9	17	7	9	3	43	-	43	19	11	3	-	-	-	63	184
Colorado State Univ	120	10	3	7	9	9	-	47	23	24	6	5	34	-	6	3	14	134
Rutgers Univ/NJ	117	22	9	13	6	4	2	36	8	28	13	7	27	6	1	6	43	160
Johns Hopkins U/MD	113	15	9	6	6	6	2	39	-	39	19	1	25	4	3	1	28	141
Case Westrn Rsrve/OH	112	23	9	14	-	1	5	14	-	14	1	2	66	9	7	8	12	124
SUNY at Buffalo	110	19	6	13	-	3	4	26	-	26	12	9	37	10	12	4	63	173
Carnegie Mellon U/PA	106	10	5	5	-	6	11	6	-	6	4	3	66	10	20	8	11	117
Pittsburgh, Univ of	106	28	11	17	1	7	2	10	-	10	22	6	30	8	9	-	95	201
Georgia Inst Tech	106	8	2	6	5	2	9	5	-	5	-	3	74	6	10	19	5	111
Cal Inst Technology	105	44	23	21	11	5	2	6	-	6	3	-	34	5	9	4	-	105
Nebraska, U-Lincoln	103	20	3	17	2	3	3	33	21	12	16.	16	10	-	-	-	56	159
SUNY at Stony Brook	101	27	12	15	15	8	2	19	-	19	9	8	13	-	6	2	16	117
Rochester,Univ of/NY	100	34	20	14	3	5	5	21	-	21	14	3	15	9	4	1	35	135
Indiana U Bloomgton	100	30	11	19	1	3	4	27	-	27	33	2	-	-	-	-	103	203
Georgia, Univ of	100	12	1	11	2	2	-	61	25	36	9	14	-	-	-	-	76	176
LA St Univ & A&M C	100	15	3	12	6	5	9	37	18	19	9	7	12	4	1	2	36	136
Virginia, Univ of	99	23	11	12	2	6	1	18	-	18	12	11	26	6	2	3	47	146
Missouri, U-Columbia	97	4	1	3	2	3	-	42	20	22	7	12	27	4	7	5	61	158
Utah, Univ of	97	16	3	13	6	6	4	8	-	8	11	11	35	7	6	4	23	120
Kansas, Univ of	95	10	4	6	3	-	3	29	-	29	18	17	15	1	8	1	40	135
Rensselaer Poly I/NY	92	11	4	7	2	7	5	-	-	-	6	-	61	6	14	11	5	97
Cincinnati, U of/OH	91	24	4	20	6	4	1	20	-	20	8	5	23	2	4	7	46	137
Oregon State Univ	91	5	1	4	3	1	6	52	35	17	5	-	19	3	1	8	11	102
Hawaii, Univ of	90	17	8	9	10	4	-	25	9	16	27	5	2	-	-	-	14	104
Iowa, University of	86	13	4	9	1	2	2	27	-	27	14	8	19	3	1	5	93	179
New York University	85	13	11	2	2	12	12	17	-	17	16	12	1	-	-	-	104	189
Calif, U-Santa Barb	85	22	17	5	7	3	-	16	-	16	11	7	19	3	12	2	27	112
Boston University/MA	82	14	12	2	2	4	4	25	-	25	19	11	3	-	-	-	72	154
Washington State U	82	6	2	4		4	3	36	11	25	15	5	9	1	1	3	26	108
Brown University/RI	81	25	17	8		16	4	4	-	4	13	2	9	-	3	3	17	98
Kentucky, Univ of	81	7	2	5	2	3	-	32	17	15	13	10	14	2	3	4	36	117
CUNY-Grad Sch&U Ctr	79	18	12	6	-	1	3	15	-	15	19	15	8	1	4	2	39	118
Syracuse Univ/NY	79	14	5	9	2	4	6	3	-	3	20	6	24	4	9	1	29	108
Tenn, U-Knoxville	79	10	5	5	2	2	-	19	4	15	14	12	20	2	3	1	40	119
Kansas State Univ	77	11	1	10	-	3	3	46	28	18	5	2	7	3	-	1	22	99
Duke University/NC	76	12	5	7	1	-	6	25	-	25	10	4	18	-	6	2	22	98
Connecticut, Univ of	75	13	2	11	-	5	2	11	-	11	16	12	16	2	6	1	20	95
Oklahoma State Univ	75	5	1	4	1	2	1	20	12	8	12	9	25	8	2	4	51	126
Arizona State Univ	74	18	9	9	1	-	2	8	-	8	4	8	33	2	16	6	49	123
Illinois,U-Chicago	71	9	1	8	-	6	2	18	-	18	6	5	25	3	2	13	9	80
Houston, U of/TX	71	10	3	7	4	3	3	6	-	6	5	11	29	13	3	5	29	100
Rice University/TX	70	16	8	8	6	4	2	5	-	5	9	3	25	6	4	4	12	82
Washington Univ/MO	69	9	3	6	1	4	2	25	-	25	10	2	16	6	2	4	13	82
Delaware, Univ of	68	14	2	12	6	5	3	6	1	5	5	5	24	13	6	2	6	74
Texas Tech Univ	65	8	1	7	2	1	-	17	10	7	10	12	15	1	4	2	27	92
Wayne State Univ/MI	61	21	5	16	-	2	3	14	-	14	8	4	9	2	3	3	28	89

See footnotes at end of table.

Table 10. Institutions conferring science and engineering doctorates by major field and sex(1): 1989--continued

	Field of study																	
	Total	Physical Sciences			Earth		Comp/	Agric & Biol Sci					Engineering(2)				Non-	Total
Institution	sci & eng	Sub-total	Phys& astr	Chemistry	atmos & mar	Math	info sci	Sub-total	Agri sci	Biol sci	Soc sci	Psych	Sub-total	Chem	Elec	Mech	sci & eng(3)	all flds
MALE																		
Calif,U-Irvine	61	18	8	10	-	1	4	10	-	10	6	1	21	-	14	3	11	72
Lehigh University/PA	60	6	3	3	2	5	2	6	-	6	1	1	37	9	2	4	10	70
New Mexico, Univ of	60	16	9	7	4	4	-	7	-	7	5	7	17	-	9	3	24	84
Florida State Univ	59	11	6	5	6	3	4	10	-	10	10	15	-	-	-	-	84	143
Oklahoma, U of	59	9	3	6	4	1	-	6	-	6	13	6	20	5	2	4	28	87
Clemson Univ/SC	58	7	5	2	-	3	2	20	7	13	4	-	22	1	3	6	8	66
Auburn University/AL	58	7	3	4	-	3	-	14	13	1	6	8	20	5	2	1	13	71
Oregon, Univ of	58	10	8	2	1	4	2	8	-	8	21	12	-	-	-	-	63	121
Notre Dame, U of/IN	57	12	5	7	-	5	-	9	-	9	12	1	18	8	5	2	18	75
Geo Washington U/DC	57	2	1	1	1	1	4	9	-	9	14	1	25	-	3	4	32	89
Temple University/PA	56	5	2	3	-	3	1	16	-	16	9	22	-	-	-	-	86	142
Vanderbilt Univ/TN	53	5	1	4	-	1	1	15	-	15	9	8	14	2	3	2	23	76
Utah State Univ	51	4	2	2	3	1	-	19	6	13	6	6	12	1	-	-	7	58
West Virginia Univ	50	9	5	4	2	-	-	12	4	8	5	5	17	3	2	1	20	70
South Carolina, U of	50	10	4	6	6	2	-	9	-	9	8	7	8	-	2	3	55	105
Calif, U-Riverside	49	9	3	6	-	1	-	27	5	22	9	3	-	-	-	-	8	57
Texas,U-Dallas	46	15	13	2	15	2	3	3	-	3	6	-	2	-	-	-	11	57
Rhode Island, U of	44	1	-	1	11	1	1	6	1	5	1	3	20	1	11	5	2	46
Wyoming, Univ of	44	7	4	3	3	4	-	12	3	9	5	6	7	-	4	2	6	50
Brigham Young U/UT	44	6	3	3	-	-	-	4	-	4	1	13	20	7	2	5	45	89
Texas,U-Arlington	43	13	2	11	-	9	3	-	-	-	-	1	17	-	3	3	9	52
Akron, U of/OH	42	17	-	17	-	-	-	-	-	-	2	6	17	3	1	2	12	54
Emory Univ/GA	42	14	2	12	-	1	-	16	-	16	3	8	-	-	-	-	17	59
Miami, Univ of/FL	42	5	1	4	6	2	-	11	-	11	1	8	9	-	3	3	19	61
U S Internatl U/CA	42	-	-	-	-	-	-	-	-	-	1	41	-	-	-	-	38	80
SUNY at Albany	41	9	7	2	3	1	1	4	-	4	18	5	-	-	-	-	30	71
Southern Ill Univ	40	4	-	4	1	3	-	9	1	8	10	13	-	-	-	-	45	85
Idaho, Univ of	39	6	3	3	4	4	-	10	7	3	-	-	15	3	5	3	7	46
New Mexico State U	39	6	4	2	-	2	3	17	13	4	-	3	8	1	4	-	8	47
Sthrn Methodist U/TX	38	-	-	-	-	3	5	-	-	-	9	-	21	-	11	3	2	40
Alabama, Univer of	37	12	4	8	1	1	-	4	-	4	3	5	11	2	3	3	37	74
Hofstra Univ/NY	36	-	-	-	-	-	-	-	-	-	-	36	-	-	-	-	2	38
Polytechnic Univ/NY	36	11	2	9	-	1	6	-	-	-	-	-	18	2	4	2	2	38
Missouri,U-Rolla	35	8	2	6	-	2	2	-	-	-	-	-	23	-	2	5	-	35
Georgetown Univ/DC	34	5	2	3	-	-	-	12	-	12	17	-	-	-	-	-	9	43
Mississippi State U	34	2	-	2	-	-	-	16	12	4	6	1	9	-	3	1	22	56
Colorado Sch Mines	34	3	2	1	12	-	-	-	-	-	8	-	11	3	-	-	3	37
SUNY at Binghamton	33	5	-	5	-	1	1	2	-	2	21	2	1	-	-	-	9	42
Cal S Prof Psy-L.A.	33	-	-	-	-	-	-	-	-	-	-	33	-	-	-	-	-	33
Drexel University/PA	32	7	5	2	1	1	-	2	-	2	-	-	21	2	6	5	5	37
Kent State Univ/OH	31	6	5	1	-	1	-	9	-	9	9	6	-	-	-	-	29	60
American Univ/DC	31	2	1	1	-	1	-	-	-	-	25	3	-	-	-	-	8	39
Northeastern U/MA	30	13	3	10	-	3	-	2	-	2	3	1	8	-	5	-	7	37
Clarkson Univ/NY	30	4	2	2	-	2	-	-	-	-	-	-	24	5	8	4	-	30
North Texas, Univ of	30	7	-	7	-	2	3	7	-	7	4	7	-	-	-	-	52	82
Illinois Inst Tech	29	1	-	1	-	1	2	2	-	2	-	5	18	3	5	3	1	30
Howard University/DC	28	5	1	4	-	3	-	4	-	4	10	4	2	-	1	-	7	35
Wisconsin,U-Milwauke	27	7	2	5	1	1	1	3	-	3	10	3	1	-	-	-	13	40
North Dakota St Univ	27	12	1	11	-	-	-	12	9	3	-	-	3	-	-	-	-	27
Catholic U Amer/DC	27	6	5	1	-	-	-	1	-	1	6	7	7	-	-	5	35	62
Arkansas,U-Fayettvle	27	4	2	2	-	2	-	10	7	3	-	6	5	1	-	-	25	52
Calif, U-Santa Cruz	27	9	7	2	5	2	2	8	-	8	-	1	-	-	-	-	6	33
Cal S Prof Psy-Alamd	27	-	-	-	-	-	-	-	-	-	-	27	-	-	-	-	-	27
Brandeis Univ/MA	26	6	5	1	-	5	-	12	-	12	3	-	-	-	-	-	9	35
Tufts University/MA	26	5	2	3	-	-	-	7	-	7	9	1	4	-	-	2	2	28
New Sch Soc Rsch/NY	26	-	-	-	-	-	-	-	-	-	15	11	-	-	-	-	-	26
Cal, U-San Francisco	26	5	-	5	-	-	1	19	-	19	-	-	1	-	-	-	1	27
Louisville, U of/KY	25	2	-	2	-	-	-	12	-	12	1	6	4	4	-	-	2	27
Cal S Prof Psy-S Dgo	25	-	-	-	-	-	-	-	-	-	-	25	-	-	-	-	-	25
St Louis Univ/MO	24	-	-	-	8	-	-	8	-	8	1	7	-	-	-	-	25	49
Stevens Inst Tech/NJ	23	5	3	2	-	-	2	-	-	-	-	2	14	5	2	1	-	23
Ohio University	23	6	5	1	-	2	-	4	-	4	-	7	4	2	1	-	35	58
Loyola U Chicago/IL	21	3	-	3	-	-	-	4	-	4	2	12	-	-	-	-	25	46
South Florida, U of	21	3	-	3	1	1	-	4	-	4	-	9	3	1	-	-	8	29
Alabama,U-Birmingham	21	3	1	2	-	-	2	14	-	14	-	1	1	-	-	-	7	28
Montana State Univ	21	11	6	5	-	1	-	6	3	3	1	-	2	1	1	-	4	25
Vermont, U of	20	5	1	4	-	-	-	11	-	11	-	3	1	-	1	-	1	21
Old Dominion Univ/VA	20	2	1	1	1	-	1	3	-	3	-	2	11	-	3	8	-	20
Georgia State Univ	20	-	-	-	-	-	-	3	-	3	3	14	-	-	-	-	29	49
Mississippi, Univ of	19	5	3	2	-	-	-	1	-	1	-	6	7	3	1	1	24	43
Southern Miss, U of	19	3	-	3	-	-	-	5	-	5	1	10	-	-	-	-	31	50
Maine, U-Orono	18	4	1	3	-	-	-	2	2	-	1	7	4	2	-	-	3	21
Dartmouth College/NH	18	6	5	1	-	4	-	4	-	4	-	3	1	-	-	-	-	18
Clark University/MA	18	-	-	-	-	-	-	1	-	1	11	6	-	-	-	-	1	19
Fordham Univ/NY	18	-	-	-	-	-	-	2	-	2	7	9	-	-	-	-	31	49
Toledo, Univ of/OH	18	2	-	2	-	1	-	1	-	1	-	3	11	1	-	-	17	35
VA Commonwealth Univ	18	5	-	5	-	-	-	-	-	-	5	8	-	-	-	-	4	22
Tulane U of LA	18	2	1	1	-	-	1	4	-	4	5	1	5	2	-	-	12	30
New Hampshire, U of	17	4	3	1	-	1	-	5	1	4	3	2	2	-	-	-	3	20
Rockefeller Univ/NY	17	2	2	-	-	-	-	15	-	15	-	-	-	-	-	-	-	17

See footnotes at end of table.

Table 10. Institutions conferring science and engineering doctorates by major field and sex(1): 1989--continued

		Field of study																
		Physical Sciences						Agric & Biol Sci					Engineering(2)					
Institution	Total sci & eng	Sub-total	Phys& astr	Chem-istry	Earth atmos & mar	Math	Comp/ info sci	Sub-total	Agri sci	Biol sci	Soc sci	Psych	Sub-total	Chem	Elec	Mech	Non-sci & eng(3)	Total all flds
MALE																		
VA Commwlth U Med C	16	2	-	2	-	1	-	13	-	13	-	-	-	-	-	-	3	19
Nova University/FL	16	-	-	-	1	-	7	-	-	-	3	5	-	-	-	-	132	148
Alabama,U-Huntsville	16	2	2	-	-	-	6	-	-	-	-	-	8	-	5	1	-	16
Baylor Coll Med/TX	16	-	-	-	-	-	-	16	-	16	-	-	-	-	-	-	2	18
Fielding Inst/CA	16	-	-	-	-	-	-	-	-	-	1	15	-	-	-	-	2	18
Lowell, Univ of/MA	15	14	4	10	-	-	-	-	-	-	-	-	1	-	-	-	1	16
Yeshiva-Einst Med/NY	15	-	-	-	-	-	-	15	-	15	-	-	-	-	-	-	1	16
North Dakota, U of	15	5	1	4	1	-	-	4	1	3	-	5	-	-	-	-	3	18
Northern Ill Univ	14	4	-	4	-	1	-	-	-	-	7	2	-	-	-	-	32	46
Western Michigan U	14	1	-	1	-	3	-	-	-	-	2	8	-	-	-	-	16	30
Tex U Hlth Sci-Houst	14	-	-	-	-	-	-	13	-	13	-	-	1	-	-	-	8	22
Boston College/MA	13	3	1	2	-	-	-	3	-	3	4	3	-	-	-	-	27	40
Worcester Poly I/MA	13	1	-	1	-	-	2	-	-	-	-	-	10	2	2	5	-	13
SUNY Envr Sci Frstry	13	1	-	1	-	-	-	12	7	5	-	-	-	-	-	-	-	13
Ball State Univ/IN	13	-	-	-	-	-	-	1	-	1	3	9	-	-	-	-	17	30
Wichita St Univ/KS	13	-	-	-	-	-	-	-	-	-	-	-	13	-	3	2	4	17
Tex U Med Br-Galvstn	13	-	-	-	-	-	-	13	-	13	-	-	-	-	-	-	-	13
Denver, Univ of/CO	13	2	-	2	-	-	-	-	-	-	5	6	-	-	-	-	17	30
N Mex I Mining&Tech	13	3	3	-	7	-	-	-	-	-	-	-	3	-	-	-	-	13
Nevada, Univ of	13	2	1	1	2	-	-	4	-	4	-	3	2	-	-	-	3	16
Adelphi Univ/NY	12	-	-	-	-	1	-	-	-	-	-	11	-	-	-	-	3	15
St Johns U-Queens/NY	12	1	-	1	-	-	-	3	-	3	-	8	-	-	-	-	10	22
New Jersey Inst Tech	12	-	-	-	-	-	-	-	-	-	-	-	12	4	1	3	-	12
Bowling Green S U/OH	12	-	-	-	-	1	-	-	-	-	3	8	-	-	-	-	17	29
Michigan Tech Univ	12	3	2	1	1	-	-	1	1	-	-	-	7	-	-	-	-	12
Clark Atlanta U/GA	12	-	-	-	-	-	-	4	-	4	8	-	-	-	-	-	6	18
Memphis State U/TN	12	2	-	2	-	1	-	3	-	3	-	6	-	-	-	-	18	30
Sowestern LA, U of	12	-	-	-	-	4	6	1	-	1	-	-	1	-	-	-	-	12
Tex U Swstrn Med Ctr	12	-	-	-	-	-	-	7	-	7	-	5	-	-	-	-	-	12
CA Inst Integrl Stds	12	-	-	-	-	-	-	-	-	-	-	12	-	-	-	-	2	14
Portland State U/OR	11	1	1	-	2	-	-	-	-	-	5	-	3	-	2	-	6	17
Claremnt Grad Sch/CA	11	-	-	-	-	-	-	1	-	1	4	6	-	-	-	-	24	35
Wesleyan Univ/CT	10	4	-	4	-	2	-	4	-	4	-	-	-	-	-	-	3	13
Yeshiva Univ/NY	10	-	-	-	-	-	-	-	-	-	-	10	-	-	-	-	1	11
Miami University/OH	10	1	-	1	1	-	-	3	-	3	1	4	-	-	-	-	12	22
Indiana State Univ	10	-	-	-	-	-	-	2	-	2	2	6	-	-	-	-	3	13
Marquette Univ/WI	10	4	-	4	-	1	-	2	-	2	-	1	2	-	-	1	14	24
South Dakota, U of	10	-	-	-	-	-	-	3	-	3	-	7	-	-	-	-	14	24
Dayton, U of/OH	9	-	-	-	-	-	-	1	-	1	-	-	8	-	6	2	-	9
Maryland,U-Balt Cnty	9	-	-	-	-	1	1	5	-	5	1	1	-	-	-	-	1	10
William & Mary, C/VA	9	3	3	-	5	-	-	1	-	1	-	-	-	-	-	-	10	19
Med Univ So Carolina	9	-	-	-	-	-	-	9	-	9	-	-	-	-	-	-	1	10
Medical Coll Georgia	9	-	-	-	-	-	-	9	-	9	-	-	-	-	-	-	-	9
Florida Inst Tech	9	-	-	-	1	-	-	2	-	2	-	3	3	-	-	1	1	10
Ark U-Med Sciences	9	-	-	-	-	-	-	9	-	9	-	-	-	-	-	-	-	9
Louisiana Tech Univ	9	-	-	-	-	-	-	-	-	-	-	-	9	1	-	1	11	20
Oregon Graduate Ctr	9	3	3	-	1	-	1	-	-	-	-	-	4	-	2	-	-	9
Rand Grad School/CA	9	-	-	-	-	-	-	-	-	-	9	-	-	-	-	-	1	10
Wright Inst-Berkl/CA	9	-	-	-	-	-	-	-	-	-	-	9	-	-	-	-	-	9
Cal S Prof Psy-Fresn	9	-	-	-	-	-	-	-	-	-	-	9	-	-	-	-	-	9
Duquesne Univ/PA	8	3	-	3	-	-	-	-	-	-	-	5	-	-	-	-	8	16
Inst Paper Chem/WI	8	4	-	4	-	-	-	1	1	-	-	-	3	1	-	-	-	8
Baylor Univ/TX	8	8	4	4	-	-	-	-	-	-	-	-	-	-	-	-	11	19
Sam Houston St U/TX	8	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	8
Fuller Theol Sem/CA	8	-	-	-	-	-	-	-	-	-	3	5	-	-	-	-	8	16
Alaska, Univ of	8	1	1	-	4	1	-	2	-	2	-	-	-	-	-	-	-	8
New York Medical Col	7	-	-	-	-	-	-	7	-	7	-	-	-	-	-	-	-	7
N.J. Med Sch-Newark	7	-	-	-	-	-	-	7	-	7	-	-	-	-	-	-	-	7
Rutgers U-Newark/NJ	7	3	-	3	-	-	-	1	-	1	1	2	-	-	-	-	2	9
Med Coll Ohio Toledo	7	-	-	-	-	-	-	7	-	7	-	-	-	-	-	-	1	8
Detroit, U of/MI	7	1	-	1	-	-	-	-	-	-	-	3	3	-	-	3	-	7
Med Coll Wisconsin	7	-	-	-	-	-	-	7	-	7	-	-	-	-	-	-	-	7
Missouri,U-Kans City	7	1	-	1	-	-	-	-	-	-	-	6	-	-	-	-	16	23
George Mason U/VA	7	-	-	-	-	1	1	1	-	1	3	-	1	-	-	-	5	12
Cntrl Florida, U/FL	7	-	-	-	-	-	5	-	-	-	-	-	2	-	1	1	4	11
Montana, Univ of	7	-	-	-	1	2	-	2	-	2	-	2	-	-	-	-	3	10
Northern Colorado,U	7	-	-	-	-	3	-	-	-	-	2	2	-	-	-	-	33	40
Loma Linda Univ/CA	7	-	-	-	-	-	-	7	-	7	-	-	-	-	-	-	8	15
Cornell U Med Col/NY	6	-	-	-	-	-	-	6	-	6	-	-	-	-	-	-	-	6
SUNY Hlth Sci-Brklyn	6	-	-	-	-	-	-	6	-	6	-	-	-	-	-	-	1	7
Fairleigh Dickn U/NJ	6	-	-	-	-	-	-	-	-	-	-	6	-	-	-	-	-	6
Med Coll Pensylvania	6	-	-	-	-	-	-	6	-	6	-	-	-	-	-	-	-	6
Cleveland St Univ/OH	6	1	-	1	-	-	-	1	-	1	-	-	4	-	2	-	-	6
Oakland Univ/MI	6	3	2	1	-	-	-	-	-	-	-	-	3	-	-	-	-	6
Missouri,U-St Louis	6	4	-	4	-	-	-	-	-	-	-	2	-	-	-	-	3	9
South Dakota State U	6	-	-	-	-	-	-	6	6	-	-	-	-	-	-	-	-	6
Maryland,U, Sch Med	6	-	-	-	-	-	-	6	-	6	-	-	-	-	-	-	4	10
NC, U of-Greensboro	6	-	-	-	-	-	-	2	-	2	2	2	-	-	-	-	20	26
Tennessee Tech U	6	-	-	-	-	-	-	-	-	-	-	-	6	1	3	1	-	6
Tex U Hlth Sci-S Ant	6	-	-	-	-	-	-	6	-	6	-	-	-	-	-	-	-	6

See footnotes at end of table.

Table 10. Institutions conferring science and engineering doctorates by major field and sex(1): 1989--continued

		Field of study																
	Total sci & eng	Physical Sciences			Earth atmos & mar	Math	Comp/ info sci	Agric & Biol Sci			Soc sci	Psych	Engineering(2)				Non-sci & eng(3)	Total all flds
Institution		Sub-total	Phys& astr	Chem-istry				Sub-total	Agri sci	Biol sci			Sub-total	Chem	Elec	Mech		
MALE																		
Oregon Health Sci U	6	-	-	-	-	-	-	6	-	6	-	-	-	-	-	-	-	6
Alfred University/NY	5	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	5
Maharishi Intl U/IA	5	2	2	-	-	-	-	1	-	1	-	2	-	-	-	-	-	5
E Crlna U Sch Med/NC	5	-	-	-	-	-	-	5	-	5	-	-	-	-	-	-	-	5
Wake Forest Univ/NC	5	-	-	-	-	-	-	5	-	5	-	-	-	-	-	-	-	5
Tenn,U Ctr Hth Sci	5	-	-	-	-	-	-	5	-	5	-	-	-	-	-	-	2	7
Texas, U-El Paso	5	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	5
Texas Womns Univ	5	-	-	-	-	-	-	1	-	1	2	2	-	-	-	-	3	8
SUNY Hlth Sci-Syracu	4	-	-	-	-	-	-	4	-	4	-	-	-	-	-	-	-	4
Union-Albany Med/NY	4	-	-	-	-	-	-	4	-	4	-	-	-	-	-	-	-	4
Phila C Pharm&Sci/PA	4	4	-	4	-	-	-	-	-	-	-	-	-	-	-	-	1	5
Air Force I Tech/OH	4	1	1	-	-	-	-	-	-	-	-	-	3	-	1	-	-	4
Hlth Sci U-Chi Md/IL	4	-	-	-	1	-	-	2	-	2	-	1	-	-	-	-	-	4
Depaul University/IL	4	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	4
Rush University/IL	4	-	-	-	-	-	-	3	-	3	-	1	-	-	-	-	1	5
Florida Atlantic U	4	-	-	-	-	-	-	-	-	-	-	-	4	-	1	1	5	9
Mississippi U-Med Ct	4	-	-	-	-	-	-	4	-	4	-	-	-	-	-	-	-	4
Dallas, Univ of/TX	4	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	4
Northern Arizona U	4	-	-	-	-	-	-	4	-	4	-	-	-	-	-	-	17	21
Naval Postgrad S/CA	4	-	-	-	-	2	1	-	-	-	-	-	1	-	-	-	-	4
Pacfc Grad Psych/CA	4	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	4
Caribbean C Adv S/PR	4	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	4
LIU-Brooklyn Cmps/NY	3	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	3
Seton Hall Univ/NJ	3	1	-	1	-	-	-	-	-	-	-	2	-	-	-	-	5	8
Bryn Mawr Coll/PA	3	1	1	-	-	-	-	-	-	-	-	2	-	-	-	-	4	7
Thomas Jeffrson U/PA	3	-	-	-	-	-	-	3	-	3	-	-	-	-	-	-	-	3
Hahnemann Univ/PA	3	-	-	-	-	-	-	2	-	2	-	1	-	-	-	-	-	3
S Dakota S Mine&Tech	3	-	-	-	1	-	-	-	-	-	-	-	2	-	-	-	-	3
South Alabama, U	3	-	-	-	-	-	-	3	-	3	-	-	-	-	-	-	-	3
LA St U, S Med-N Orl	3	-	-	-	-	-	-	3	-	3	-	-	-	-	-	-	-	3
New Orleans,U of/LA	3	1	-	1	-	-	-	-	-	-	1	1	-	-	-	-	5	8
Texas Christian Univ	3	1	1	-	-	-	-	-	-	-	-	2	-	-	-	-	2	5
Biola Univ/CA	3	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	3	6
PR, U-Rio Piedras	3	3	1	2	-	-	-	-	-	-	-	-	-	-	-	-	4	7
Union University/NY	2	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	2	4
Indiana Univ of Pa	2	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	8	10
Unfrm Svc U Hlth/MD	2	-	-	-	-	-	-	2	-	2	-	-	-	-	-	-	-	2
LSU, Sch Med-Shrvprt	2	-	-	-	-	-	-	2	-	2	-	-	-	-	-	-	-	2
NE Louisiana Univ	2	-	-	-	-	-	-	2	-	2	-	-	-	-	-	-	2	4
Tulsa, Univ of/OK	2	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	2	4
S F Austin St U/TX	2	-	-	-	-	-	-	2	2	-	-	-	-	-	-	-	-	2
Idaho State Univ	2	-	-	-	-	1	-	1	-	1	-	-	-	-	-	-	2	4
Mass, U Med S-Wrcstr	1	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	1
Pace University/NY	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	3	4
Annenbrg Res Inst/PA	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1
Wright State Univ/OH	1	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	1
Creighton Univ/NE	1	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	1
East Tenn State Univ	1	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	1
Meharry Med Coll/TN	1	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	1
Geo Peabody Col/TN	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	36	37
East Texas State U	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	28	29
Lamar University/TX	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	1
Pacific, U of/CA	1	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	7	8
Santa Clara Univ/CA	1	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	1
Saybrook Inst/CA	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1

See footnotes at end of table.

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Table 10. Institutions conferring science and engineering doctorates by major field and sex(1): 1989--continued

Institution	Total sci & eng	Physical Sciences Sub-total	Phys& astr	Chem-istry	Earth atmos & mar	Math	Comp/ info sci	Agric & Biol Sci Sub-total	Agri sci	Biol sci	Soc sci	Psych	Engineering(2) Sub-total	Chem	Elec	Mech	Non-sci & eng(3)	Total all flds
FEMALE																		
Calif, U-Berkeley	166	21	3	18	5	6	1	48	4	44	48	18	19	3	2	-	120	286
Wisconsin,U-Madison	112	6	2	4	6	3	1	52	15	37	24	15	5	-	-	-	104	216
Cornell Univ/NY	111	15	4	11	2	3	1	52	18	34	17	10	11	2	3	1	38	149
Calif, U-Los Angeles	103	15	2	13	6	2	1	30	-	30	35	11	3	1	-	-	75	178
Ohio State Univ	93	8	-	8	1	1	-	37	4	33	13	22	11	1	3	-	118	211
Ill, U, Urbana-Champ	91	9	-	9	3	1	3	34	8	26	17	14	10	2	2	2	78	169
Minnesota,U-Minneapl	91	7	-	7	-	2	1	27	10	17	15	32	7	2	-	1	83	174
Columbia Univ/NY	86	10	2	8	5	1	-	26	-	26	20	20	4	-	1	-	55	141
Texas, U-Austin	84	11	4	7	1	3	2	17	-	17	27	13	10	3	4	-	146	230
Maryland, Univ of	79	5	2	3	-	2	2	23	4	19	15	28	4	-	1	-	94	173
Stanford Univ/CA	79	11	5	6	4	3	4	10	-	10	23	9	15	2	4	2	65	144
Cal S Prof Psy-L.A.	79	-	-	-	-	-	-	-	-	-	-	79	-	-	-	-	-	79
Mass Inst Technology	78	10	4	6	10	3	2	17	-	17	11	1	24	4	2	1	3	81
CUNY-Grad Sch&U Ctr	78	9	2	7	3	-	-	15	-	15	13	38	-	-	-	-	38	116
Pennsylvania, U of	78	6	-	6	1	-	1	24	-	24	20	19	7	2	-	-	71	149
Northwestern Univ/IL	75	3	1	2	2	4	1	17	-	17	23	20	5	1	-	-	51	126
Florida, Univ of	75	11	2	9	1	-	-	26	10	16	14	19	4	-	-	-	42	117
Georgia, Univ of	69	4	-	4	-	1	-	36	5	31	10	18	-	-	-	-	95	164
Michigan State Univ	67	4	-	4	-	2	1	29	10	19	15	12	4	-	-	2	52	119
Michigan, Univ of	67	8	2	6	2	2	-	15	-	15	21	14	5	-	-	-	85	152
Washington, U of	67	7	2	5	5	3	1	27	6	21	13	8	3	-	2	-	82	149
Purdue University/IN	66	16	4	12	1	1	3	22	6	16	6	8	9	2	-	-	34	100
Rutgers Univ/NJ	64	7	2	5	4	2	1	27	4	23	9	10	4	2	1	-	74	138
Texas A&M University	64	9	-	9	3	2	4	21	12	9	6	10	9	1	-	1	45	109
Penn State Univ	61	9	-	9	5	3	-	19	5	14	11	10	4	-	-	-	62	123
Harvard Univ/MA	58	5	3	2	-	1	1	27	-	27	19	4	1	-	-	-	106	164
Yale University/CT	56	10	1	9	2	-	1	16	1	15	14	12	1	-	-	1	58	114
New York University	55	3	1	2	-	1	5	13	-	13	8	25	-	-	-	-	129	184
Colorado, U-Boulder	55	9	2	7	2	-	1	15	-	15	10	13	5	1	-	-	42	97
Calif, U-Davis	55	8	1	7	-	1	1	36	1	35	4	4	1	-	1	-	9	64
Connecticut, Univ of	53	7	-	7	-	3	-	15	1	14	11	14	3	-	-	-	49	102
NC, U of-Chapel Hill	53	4	-	4	1	1	-	18	-	18	13	14	2	-	-	-	62	115
Arizona, Univ of	53	8	3	5	1	-	2	21	4	17	8	11	2	-	-	1	38	91
Mass, U of-Amherst	52	13	1	12	-	2	2	13	3	10	9	9	4	2	-	-	80	132
Chicago, Univ of/IL	52	4	2	2	1	1	-	18	-	18	18	10	-	-	-	-	45	97
Virginia, Univ of	51	9	1	8	-	-	1	15	-	15	3	16	7	-	-	-	64	95
SUNY at Buffalo	48	6	-	6	1	2	-	13	-	13	9	13	4	2	1	-	58	106
U S Internatl U/CA	48	-	-	-	-	-	-	-	-	-	-	48	-	-	-	-	9	57
Calif, U-San Diego	47	5	2	3	5	2	1	18	-	18	10	1	5	1	1	-	9	56
SUNY at Stony Brook	46	6	2	4	1	1	-	12	-	12	9	15	2	-	1	1	26	72
VA Poly Inst&State U	44	7	1	6	1	1	-	14	5	9	5	9	7	1	1	-	49	93
Southern Calif, U of	44	6	-	6	-	-	-	10	-	10	11	14	3	-	1	-	65	109
Rochester,Univ of/NY	43	9	2	7	-	2	2	17	-	17	5	8	-	-	-	-	30	73
Johns Hopkins U/MD	43	9	2	7	1	-	-	21	-	21	8	2	2	-	-	-	44	87
Tenn, U-Knoxville	43	3	1	2	-	1	-	18	4	14	7	13	1	-	-	-	47	90
LA St Univ & A&M C	42	8	2	6	2	2	1	10	5	5	5	12	2	1	1	-	28	70
Pittsburgh, Univ of	41	7	1	6	1	-	1	10	-	10	5	16	1	-	-	-	121	162
Temple University/PA	40	2	-	2	-	1	1	5	-	5	2	29	-	-	-	-	110	150
Iowa State Univ	40	7	2	5	1	2	-	16	7	9	9	4	1	1	-	-	23	63
Illinois,U-Chicago	39	5	-	5	-	-	2	15	-	15	9	7	1	-	-	1	38	77
Kansas, Univ of	38	3	-	3	-	-	-	13	-	13	4	16	2	1	-	-	51	89
Boston University/MA	37	3	1	2	-	2	-	2	-	2	13	17	-	-	-	-	108	145
Princeton Univ/NJ	37	5	-	5	-	-	-	8	-	8	13	4	7	3	1	-	22	59
Hawaii, Univ of	37	2	1	1	3	-	-	7	1	6	21	4	-	-	-	-	21	58
Indiana U Bloomngton	36	3	1	2	1	-	3	10	-	10	13	6	-	-	-	-	89	125
Iowa, University of	36	6	-	6	-	2	-	8	-	8	3	15	2	1	-	-	72	108
Duke University/NC	36	4	-	4	-	-	1	17	-	17	3	6	5	-	1	-	14	50
Calif, U-Santa Barb	36	4	1	3	2	2	-	9	-	9	6	9	4	1	2	-	25	61
Kentucky, Univ of	35	3	1	2	-	1	-	12	3	9	6	13	-	-	-	-	30	65
Vanderbilt Univ/TN	35	1	-	1	-	1	-	9	-	9	5	17	2	-	-	-	18	53
Florida State Univ	34	2	1	1	1	1	-	4	-	4	11	15	-	-	-	-	72	106
Washington State U	34	-	-	-	-	1	1	12	3	9	8	11	1	-	-	-	9	43
Cal S Prof Psy-Alamd	34	-	-	-	-	-	-	-	-	-	-	34	-	-	-	-	-	34
NC State U-Raleigh	32	3	1	2	-	1	-	15	8	7	2	7	4	2	-	-	17	49
Brandeis Univ/MA	29	6	2	4	-	1	-	6	-	6	15	1	-	-	-	-	6	35
SUNY at Albany	29	2	-	2	2	1	-	3	-	3	11	10	-	-	-	-	32	61
Geo Washington U/DC	29	1	-	1	-	2	-	4	-	4	7	13	2	-	1	-	39	68
Oklahoma State Univ	29	1	1	-	1	-	2	7	1	6	4	14	-	-	-	-	59	88
Colorado State Univ	29	4	-	4	1	2	-	14	2	12	1	6	1	-	-	1	10	39
Cal Inst Technology	29	13	4	9	3	2	1	5	-	5	-	-	5	5	-	-	-	29
Washington Univ/MO	28	3	-	3	3	1	-	7	-	7	9	5	-	-	-	-	8	36
South Carolina, U of	28	5	-	5	1	1	-	7	-	7	4	9	1	-	-	1	52	80
Brown University/RI	27	7	-	7	2	3	-	6	-	6	5	3	1	-	-	1	22	49
Carnegie Mellon U/PA	27	2	1	1	-	4	3	1	-	1	4	3	10	4	4	1	14	41
Nebraska, U-Lincoln	27	-	-	-	-	-	-	14	2	12	4	9	-	-	-	-	58	85
Georgetown Univ/DC	27	3	-	3	-	-	-	10	-	10	14	-	-	-	-	-	11	38
Rice University/TX	27	10	3	7	3	2	-	1	-	1	6	3	2	-	-	-	11	38
Case Westrn Rsrve/OH	26	4	1	3	-	-	2	5	-	5	3	4	8	1	-	-	26	52
Kent State Univ/OH	26	1	-	1	-	1	-	2	-	2	6	16	-	-	-	-	31	57
New Mexico, Univ of	26	1	-	1	1	1	-	4	-	4	1	15	3	-	1	-	29	55

See footnotes at end of table.

Table 10. Institutions conferring science and engineering doctorates by major field and sex(1): 1989--continued

		Field of study																
		Physical Sciences						Agric & Biol Sci					Engineering(2)					
Institution	Total sci & eng	Sub-total	Phys& astr	Chem-istry	Earth atmos & mar	Math	Comp/ info sci	Sub-total	Agri sci	Biol sci	Soc sci	Psych	Sub-total	Chem	Elec	Mech	Non-sci & eng(3)	Total all flds
FEMALE																		
Oregon, Univ of	26	4	2	2	-	1	-	5	-	5	9	7	-	-	-	-	48	74
Calif,U-Irvine	26	2	1	1	-	2	1	11	-	11	7	3	-	-	-	-	9	35
Fordham Univ/NY	25	-	-	-	-	-	-	1	-	1	5	19	-	-	-	-	48	73
Wayne State Univ/MI	25	4	1	3	-	-	-	6	-	6	3	9	3	1	-	-	31	56
Emory Univ/GA	25	5	1	4	-	1	-	9	-	9	2	8	-	-	-	-	24	49
Miami, Univ of/FL	25	1	-	1	1	-	-	2	-	2	1	20	-	-	-	-	16	41
Arizona State Univ	25	3	-	3	-	1	3	5	-	5	2	9	2	1	-	1	46	71
Fielding Inst/CA	25	-	-	-	-	-	-	-	-	-	-	25	-	-	-	-	7	32
Cal S Prof Psy-S Dgo	25	-	-	-	-	-	-	-	-	-	-	25	-	-	-	-	-	25
Syracuse Univ/NY	24	3	2	1	-	-	3	4	-	4	8	6	-	-	-	-	34	58
Missouri, U-Columbia	24	-	-	-	1	-	-	15	7	8	1	6	1	1	-	-	54	78
Houston, U of/TX	24	3	-	3	1	1	1	3	-	3	-	12	3	-	-	1	30	54
Oregon State Univ	24	1	1	-	-	1	1	16	6	10	2	1	2	1	-	-	16	40
Southern Ill Univ	23	2	-	2	-	1	-	4	1	3	5	11	-	-	-	-	39	62
Delaware, Univ of	23	2	1	1	2	2	1	2	-	2	8	4	2	1	-	-	15	38
Utah, Univ of	23	1	-	1	1	-	-	7	-	7	2	10	2	1	1	-	31	54
Cal, U-San Francisco	23	6	-	6	-	-	-	9	-	9	6	2	-	-	-	-	22	45
Rhode Island, U of	22	3	-	3	2	2	-	7	2	5	-	5	3	2	-	1	7	29
Cincinnati, U of/OH	22	1	-	1	-	-	-	5	-	5	3	10	3	1	1	-	37	59
Adelphi Univ/NY	21	-	-	-	-	-	-	-	-	-	-	21	-	-	-	-	23	44
Rensselaer Poly I/NY	21	6	1	5	1	-	2	-	-	-	-	-	12	2	1	3	2	23
American Univ/DC	21	4	2	2	-	-	-	1	-	1	12	4	-	-	-	-	11	32
Oklahoma, U of	21	1	-	1	-	-	2	11	-	11	1	5	1	-	-	-	26	47
South Florida, U of	20	1	-	1	1	1	-	4	-	4	2	8	3	-	1	1	25	45
Auburn University/AL	20	2	-	2	-	-	-	2	1	1	-	14	2	-	-	1	23	43
Vermont, U of	19	4	-	4	-	-	-	5	-	5	-	8	2	-	-	1	3	22
St Louis Univ/MO	19	-	-	-	-	1	-	5	-	5	-	13	-	-	-	-	23	42
Kansas State Univ	19	1	-	1	-	2	1	13	7	6	-	1	1	-	-	-	19	38
North Texas, Univ of	19	1	1	-	-	2	3	4	-	4	2	7	-	-	-	-	49	68
New Sch Soc Rsch/NY	18	-	-	-	-	-	-	-	-	-	7	11	-	-	-	-	-	18
Notre Dame, U of/IN	18	1	1	-	-	1	-	2	-	2	5	5	4	3	1	-	6	24
Texas Womans Univ	18	-	-	-	-	-	-	5	-	5	4	9	-	-	-	-	70	88
Calif, U-Riverside	18	2	1	1	-	1	-	11	7	4	2	2	-	-	-	-	8	26
Loyola U Chicago/IL	17	2	-	2	-	-	-	4	-	4	2	9	-	-	-	-	21	38
VA Comonwlth U Med C	17	-	-	-	-	-	-	17	-	17	-	-	-	-	-	-	1	18
Alabama,U-Birmingham	17	1	-	1	-	1	-	8	-	8	-	6	1	-	-	-	30	47
Tulane U of LA	17	1	-	1	-	-	1	4	-	4	4	7	-	-	-	-	16	33
Texas Tech Univ	17	1	-	1	-	-	-	7	3	4	-	8	1	-	-	-	32	49
Boston College/MA	16	1	1	-	-	-	-	2	-	2	3	10	-	-	-	-	36	52
Tufts University/MA	15	1	-	1	-	-	-	7	-	7	4	3	-	-	-	-	7	22
Howard University/DC	15	1	-	1	-	1	-	5	-	5	3	5	-	-	-	-	11	26
West Virginia Univ	15	1	-	1	-	-	-	7	1	6	2	5	-	-	-	-	27	42
Denver, Univ of/CO	15	2	1	1	-	-	-	4	-	4	3	6	-	-	-	-	33	48
St Johns U-Queens/NY	14	-	-	-	-	-	-	5	-	5	-	9	-	-	-	-	12	26
Catholic U Amer/DC	14	1	1	-	-	-	-	1	-	1	3	9	-	-	-	-	35	49
New Hampshire, U of	13	2	-	2	1	-	-	4	1	3	6	-	-	-	-	-	3	16
Yeshiva Univ/NY	13	-	-	-	-	-	-	-	-	-	-	13	-	-	-	-	3	16
Ohio University	13	-	-	-	-	-	-	3	-	3	-	9	1	-	1	-	26	39
NC, U of-Greensboro	13	-	-	-	-	-	-	2	-	2	1	10	-	-	-	-	43	56
Southern Miss, U of	13	2	-	2	-	-	-	-	-	-	-	11	-	-	-	-	17	30
Tex U Swstrn Med Ctr	13	-	-	-	-	-	-	11	-	11	-	2	-	-	-	-	-	13
Wisconsin,U-Milwauke	12	1	-	1	-	1	-	1	-	1	4	5	-	-	-	-	13	25
VA Commonwealth Univ	12	1	-	1	-	-	-	-	-	-	4	7	-	-	-	-	6	18
Georgia State Univ	12	-	-	-	-	-	-	-	-	-	1	11	-	-	-	-	45	57
Utah State Univ	12	-	-	-	-	-	-	6	4	2	-	5	1	-	-	-	5	17
Cal S Prof Psy-Fresn	12	-	-	-	-	-	-	-	-	-	-	12	-	-	-	-	-	12
Dartmouth College/NH	11	1	-	1	2	1	-	3	-	3	-	4	-	-	-	-	-	11
Hofstra Univ/NY	11	-	-	-	-	-	-	-	-	-	-	11	-	-	-	-	13	24
SUNY at Binghamton	11	1	-	1	-	1	-	-	-	-	5	4	-	-	-	-	11	22
Miami University/OH	11	3	-	3	-	-	-	3	-	3	-	5	-	-	-	-	4	15
Nova University/FL	11	-	-	-	-	-	5	-	-	-	-	6	-	-	-	-	123	134
Louisville, U of/KY	11	-	-	-	-	-	-	5	-	5	-	6	-	-	-	-	9	20
Memphis State U/TN	11	-	-	-	-	-	-	-	-	-	-	11	-	-	-	-	23	34
Wright Inst-Berkl/CA	11	-	-	-	-	-	-	-	-	-	-	11	-	-	-	-	-	11
Maine, U-Orono	10	-	-	-	-	-	-	3	1	2	-	6	1	-	-	-	5	15
Bryn Mawr Coll/PA	10	-	-	-	-	-	-	3	-	3	1	6	-	-	-	-	15	25
Hlth Sci U-Chi Md/IL	10	-	-	-	-	-	-	-	-	-	-	10	-	-	-	-	-	10
Clemson Univ/SC	10	1	-	1	-	3	-	3	-	3	-	-	3	-	1	-	1	11
Georgia Inst Tech	10	3	-	3	-	2	-	1	-	1	-	-	4	2	1	-	1	11
Texas,U-Arlington	10	-	-	-	-	3	2	1	-	1	2	1	1	-	1	-	6	16
Tex U Hlth Sci-Houst	10	-	-	-	-	-	-	10	-	10	-	-	-	-	-	-	11	21
CA Inst Integrl Stds	10	-	-	-	-	-	-	-	-	-	-	10	-	-	-	-	-	10
Caribbean C Adv S/PR	10	-	-	-	-	-	-	-	-	-	-	10	-	-	-	-	-	10
Northeastern U/MA	9	2	-	2	-	-	-	-	-	-	2	4	1	-	1	-	7	16
LIU-Brooklyn Cmps/NY	9	-	-	-	-	-	-	-	-	-	-	9	-	-	-	-	-	9
Akron, U of/OH	9	2	-	2	-	-	-	1	-	1	2	4	-	-	-	-	17	26
Western Michigan U	9	-	-	-	-	2	-	-	-	-	1	6	-	-	-	-	13	22
Missouri,U-Kans City	9	1	-	1	-	-	-	-	-	-	-	8	-	-	-	-	9	18
Old Dominion Univ/VA	9	1	-	1	1	1	-	1	-	1	3	2	-	-	-	-	3	12
Texas,U-Dallas	9	-	-	-	2	1	-	3	-	3	1	2	-	-	-	-	6	15

See footnotes at end of table.

Table 10. Institutions conferring science and engineering doctorates by major field and sex(1): 1989--continued

Institution	Field of study																	
	Total sci & eng	Physical Sciences			Earth atmos & mar	Math	Comp/info sci	Agric & Biol Sci			Soc sci	Psych	Engineering(2)				Non-sci & eng(3)	Total all flds
		Sub-total	Phys& astr	Chemistry				Sub-total	Agri sci	Biol sci			Sub-total	Chem	Elec	Mech		
FEMALE																		
New Mexico State U	9	1	1	-	-	1	1	3	1	2	-	3	-	-	-	-	6	15
Cornell U Med Col/NY	8	-	-	-	-	-	-	8	-	8	-	-	-	-	-	-	-	8
Lehigh University/PA	8	1	-	1	-	1	1	1	-	1	2	1	1	-	-	1	14	22
Illinois Inst Tech	8	2	1	1	-	1	1	-	-	-	-	4	-	-	-	-	-	8
Northern Ill Univ	8	-	-	-	1	-	-	1	-	1	2	4	-	-	-	-	43	51
Med Univ So Carolina	8	-	-	-	-	-	-	8	-	8	-	-	-	-	-	-	-	8
Arkansas,U-Fayettvle	8	-	-	-	-	1	-	4	2	2	-	2	1	-	1	-	24	32
Calif, U-Santa Cruz	8	-	-	-	2	-	-	2	-	2	-	4	-	-	-	-	5	13
Fuller Theol Sem/CA	8	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	1	9
Wesleyan Univ/CT	7	3	-	3	-	2	-	2	-	2	-	-	-	-	-	-	-	7
Rockefeller Univ/NY	7	-	-	-	-	-	-	7	-	7	-	-	-	-	-	-	-	7
Yeshiva-Einst Med/NY	7	-	-	-	-	-	-	7	-	7	-	-	-	-	-	-	1	8
Rutgers U-Newark/NJ	7	3	-	3	-	-	-	-	-	-	1	3	-	-	-	-	-	7
Seton Hall Univ/NJ	7	1	-	1	-	-	-	-	-	-	-	6	-	-	-	-	7	14
Depaul University/IL	7	-	-	-	-	-	-	-	-	-	-	7	-	-	-	-	-	7
North Dakota St Univ	7	3	3	-	-	-	-	4	3	1	-	-	-	-	-	-	-	7
Alabama, Univer of	7	1	-	1	-	-	-	1	-	1	-	4	1	-	-	-	45	52
Montana, Univ of	7	-	-	-	1	-	-	1	-	1	-	5	-	-	-	-	2	9
Brigham Young U/UT	7	1	-	1	-	-	-	2	-	2	3	1	-	-	-	-	22	29
Nevada, Univ of	7	1	-	1	1	-	-	1	-	1	-	4	-	-	-	-	5	12
New York Medical Col	6	-	-	-	-	-	-	6	-	6	-	-	-	-	-	-	-	6
Union-Albany Med/NY	6	-	-	-	-	-	-	6	-	6	-	-	-	-	-	-	-	6
Fairleigh Dickn U/NJ	6	-	-	-	-	-	-	-	-	-	-	6	-	-	-	-	-	6
Maryland,U, Sch Med	6	1	-	1	-	-	-	5	-	5	-	-	-	-	-	-	16	22
Unfrm Svc U Hlth/MD	6	-	-	-	-	-	-	5	-	5	-	1	-	-	-	-	-	6
Clark Atlanta U/GA	6	-	-	-	-	-	-	1	-	1	4	1	-	-	-	-	9	15
Medical Coll Georgia	6	-	-	-	-	-	-	6	-	6	-	-	-	-	-	-	-	6
Mississippi State U	6	-	-	-	-	-	1	4	2	2	1	-	-	-	-	-	23	29
Colorado Sch Mines	6	-	-	-	2	-	-	-	-	-	2	-	2	-	-	-	-	6
Oregon Health Sci U	6	-	-	-	-	-	-	4	-	4	-	2	-	-	-	-	-	6
Portland State U/OR	6	1	-	1	1	-	-	-	-	-	4	-	-	-	-	-	12	18
Claremnt Grad Sch/CA	6	-	-	-	-	-	-	-	-	-	2	4	-	-	-	-	26	32
PR, U-Rio Piedras	6	2	-	2	-	-	-	1	-	1	1	2	-	-	-	-	7	13
Hahnemann Univ/PA	5	-	-	-	-	-	-	3	-	3	-	2	-	-	-	-	-	5
Bowling Green S U/OH	5	-	-	-	-	-	-	-	-	-	1	4	-	-	-	-	13	18
Med Coll Ohio Toledo	5	-	-	-	-	-	-	5	-	5	-	-	-	-	-	-	1	6
North Dakota, U of	5	-	-	-	-	-	-	2	-	2	-	3	-	-	-	-	6	11
George Mason U/VA	5	-	-	-	-	-	4	-	-	-	1	-	-	-	-	-	6	11
Baylor Coll Med/TX	5	-	-	-	-	-	-	5	-	5	-	-	-	-	-	-	-	5
Sthrn Methodist U/TX	5	-	-	-	-	1	1	1	-	1	2	-	-	-	-	-	-	5
Texas Christian Univ	5	-	-	-	-	-	-	1	-	1	-	4	-	-	-	-	1	6
Tex U Med Br-Galvstn	5	-	-	-	-	-	-	5	-	5	-	-	-	-	-	-	-	5
Northern Colorado,U	5	-	-	-	-	2	-	-	-	-	1	2	-	-	-	-	14	19
Pacfc Grad Psych/CA	5	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	5
Clark University/MA	4	1	1	-	-	-	-	-	-	-	2	1	-	-	-	-	2	6
Polytechnic Univ/NY	4	2	-	2	-	-	1	-	-	-	-	-	1	1	-	-	-	4
SUNY Envr Sci Frstry	4	-	-	-	1	-	-	3	2	1	-	-	-	-	-	-	-	4
Drexel University/PA	4	1	-	1	-	-	-	-	-	-	-	-	3	-	-	-	2	6
Thomas Jeffrson U/PA	4	-	-	-	-	-	-	4	-	4	-	-	-	-	-	-	-	4
Cleveland St Univ/OH	4	-	-	-	-	-	-	3	-	3	-	-	1	-	-	-	-	4
Detroit, U of/MI	4	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	4
Missouri,U-Rolla	4	-	-	-	-	-	2	-	-	-	-	-	2	1	-	-	-	4
Missouri,U-St Louis	4	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	5	9
South Dakota State U	4	-	-	-	-	-	-	3	3	-	1	-	-	-	-	-	-	4
Wake Forest Univ/NC	4	-	-	-	-	-	-	4	-	4	-	-	-	-	-	-	-	4
Geo Peabody Col/TN	4	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	42	46
Mississippi, Univ of	4	-	-	-	-	-	-	1	-	1	-	3	-	-	-	-	16	20
Mississippi U-Med Ct	4	-	-	-	-	-	-	4	-	4	-	-	-	-	-	-	-	4
Idaho, Univ of	4	-	-	-	-	1	-	3	1	2	-	-	-	-	-	-	7	11
N Mex I Mining&Tech	4	1	1	-	3	-	-	-	-	-	-	-	-	-	-	-	-	4
Rand Grad School/CA	4	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	4
Saybrook Inst/CA	4	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	4
Alaska, Univ of	4	-	-	-	1	-	-	2	1	1	1	-	-	-	-	-	1	5
Lowell, Univ of/MA	3	1	-	1	-	-	-	2	-	2	-	-	-	-	-	-	3	6
N.J. Med Sch-Newark	3	-	-	-	-	-	-	3	-	3	-	-	-	-	-	-	-	3
Stevens Inst Tech/NJ	3	1	-	1	-	-	-	-	-	-	-	1	1	-	-	1	-	3
Duquesne Univ/PA	3	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	2	5
Med Coll Pensylvania	3	-	-	-	-	-	-	3	-	3	-	-	-	-	-	-	-	3
Toledo, Univ of/OH	3	-	-	-	-	-	-	2	-	2	-	1	-	-	-	-	18	21
Wright State Univ/OH	3	-	-	-	-	-	-	3	-	3	-	-	-	-	-	-	-	3
Ball State Univ/IN	3	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	26	29
Marquette Univ/WI	3	-	-	-	-	-	-	2	-	2	-	1	-	-	-	-	7	10
Med Coll Wisconsin	3	-	-	-	-	-	-	3	-	3	-	-	-	-	-	-	-	3
Maharishi Intl U/IA	3	-	-	-	-	-	-	2	-	2	-	1	-	-	-	-	-	3
Maryland,U-Balt Cnty	3	-	-	-	-	-	-	1	-	1	-	2	-	-	-	-	-	3
Inst Paper Chem/WI	3	1	-	1	-	-	-	-	-	-	-	-	2	1	-	-	-	3
Florida Inst Tech	3	1	1	-	-	-	-	-	-	-	-	2	-	-	-	-	-	3
Meharry Med Coll/TN	3	-	-	-	-	-	-	3	-	3	-	-	-	-	-	-	1	4
Alabama,U-Huntsville	3	-	-	-	-	-	2	-	-	-	-	-	1	-	1	-	-	3
South Alabama, U	3	-	-	-	-	-	-	3	-	3	-	-	-	-	-	-	1	4

See footnotes at end of table.

Table 10. Institutions conferring science and engineering doctorates by major field and sex(1): 1989--continued

		Field of study																
	Total sci & eng	Physical Sciences			Earth atmos & mar	Math	Comp/ info sci	Agric & Biol Sci			Soc sci	Psych	Engineering(2)				Non-sci & eng(3)	Total all flds
Institution		Sub-total	Phys& astr	Chem-istry				Sub-total	Agri sci	Biol sci			Sub-total	Chem	Elec	Mech		
FEMALE																		
Ark U-Med Sciences	3	-	-	-	-	-	-	3	-	3	-	-	-	-	-	-	-	3
LA St U, S Med-N Orl	3	-	-	-	-	-	-	3	-	3	-	-	-	-	-	-	1	4
Tex U Hlth Sci-S Ant	3	-	-	-	-	-	-	3	-	3	-	-	-	-	-	-	-	3
Wyoming, Univ of	3	1	-	1	1	-	-	-	-	-	-	1	-	-	-	-	6	9
Mass, U Med S-Wrcstr	2	-	-	-	-	-	-	2	-	2	-	-	-	-	-	-	2	4
Mass, U-Boston	2	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	2
Clarkson Univ/NY	2	1	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	2
New Jersey Inst Tech	2	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	2
Phila C Pharm&Sci/PA	2	-	-	-	-	-	-	2	-	2	-	-	-	-	-	-	1	3
Villanova Univ/PA	2	2	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Indiana State Univ	2	-	-	-	-	-	-	1	-	1	-	1	-	-	-	-	5	7
Illinois St U-Normal	2	-	-	-	-	1	-	1	-	1	-	-	-	-	-	-	20	22
Rush University/IL	2	-	-	-	-	-	-	1	-	1	-	1	-	-	-	-	3	5
South Dakota, U of	2	-	-	-	-	-	-	1	-	1	-	1	-	-	-	-	8	10
Creighton Univ/NE	2	-	-	-	-	-	-	2	-	2	-	-	-	-	-	-	-	2
Florida Atlantic U	2	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	7	9
Cntrl Florida, U/FL	2	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	8	10
Sowestern LA, U of	2	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	1	3
Dallas, Univ of/TX	2	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	2
S F Austin St U/TX	2	-	-	-	1	-	-	1	1	-	-	-	-	-	-	-	-	2
Loma Linda Univ/CA	2	-	-	-	-	-	-	2	-	2	-	-	-	-	-	-	10	12
SUNY Hlth Sci-Syracu	1	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	1
Indiana Univ of Pa	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	5	6
Andrews Univ/MI	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	4	5
Michigan Tech Univ	1	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	1
Maryland,U-E Shore	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1
Tenn,U Ctr Hth Sci	1	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	1
LSU, Sch Med-Shrvprt	1	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	1
NE Louisiana Univ	1	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	1
Tulsa, Univ of/OK	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	6	7
East Texas State U	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	28	29
Sam Houston St U/TX	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1
Montana State Univ	1	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	12	13
Northern Arizona U	1	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	17	18
Oregon Graduate Ctr	1	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	1
Biola Univ/CA	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1

(1) The institutions are ranked according to S/E doctorate production (column 1).

(2) Subtotal includes engineering fields not separately shown.

(3) Non-science/engineering doctorates in this table include doctorates whose field of specialization is unclassified.

SOURCE: Survey of Earned Doctorates

Table 11. Top 300 baccalaureate-origin institutions of science and engineering doctorates by major field(1): 1987-89

		Field of doctorate																
	Total sci & eng	Physical Sciences			Earth atmos & mar	Math	Comp/ info sci	Agric & Biol Sci			Soc sci	Psych	Engineering(2)				Non-sci & eng(3)	Total all flds
Institution of baccalaureate		Sub-total	Phys& astr	Chem-istry				Sub-total	Agri sci	Biol sci			Sub-total	Chem	Elec	Mech		
Calif, U-Berkeley	767	121	74	47	38	20	25	213	19	194	146	87	117	29	31	17	300	1067
Cornell Univ/NY	586	86	59	27	30	9	18	224	40	184	68	63	88	15	20	12	136	722
Ill, U. Urbana-Champ	583	66	30	36	13	6	13	177	49	128	46	74	188	25	47	34	206	789
Michigan, Univ of	533	59	20	39	26	11	14	133	7	126	77	91	122	18	25	16	300	833
Mass Inst Technology	510	135	98	37	20	26	30	61	1	60	22	7	209	38	64	22	24	534
Penn State Univ	503	47	13	34	33	6	12	180	55	125	54	72	99	18	10	16	218	721
Wisconsin,U-Madison	451	49	29	20	19	17	12	147	41	106	74	66	67	12	9	18	238	689
Calif, U-Los Angeles	445	69	38	31	19	10	11	99	3	96	57	118	62	4	19	8	215	660
Rutgers Univ/NJ	403	59	12	47	22	5	2	147	28	119	30	87	51	8	10	4	145	548
Calif, U-Davis	377	36	12	24	18	5	3	204	32	172	31	33	47	8	8	6	74	451
Minnesota,U-Minneapl	369	35	20	15	15	11	3	116	42	74	58	61	70	18	17	12	206	575
Harvard Univ/MA	366	51	41	10	11	20	23	107	3	104	85	49	20	1	5	1	149	515
Michigan State Univ	358	33	14	19	13	9	6	144	43	101	53	47	53	9	17	6	218	576
Ohio State Univ	332	35	17	18	7	6	11	109	35	74	42	56	66	7	20	10	288	620
Purdue University/IN	326	41	10	31	9	2	7	110	40	70	19	20	118	18	30	13	102	428
Washington, U of	309	44	22	22	30	7	5	85	19	66	34	48	56	14	7	5	177	486
Texas, U-Austin	304	43	18	25	12	14	12	51	3	48	45	66	61	12	14	7	256	560
Maryland, Univ of	292	32	17	15	13	9	6	106	25	81	39	43	44	5	14	10	164	456
Colorado, U-Boulder	285	36	17	19	15	11	6	67	5	62	62	46	42	12	11	2	130	415
Pennsylvania, U of	284	28	16	12	7	7	7	72	1	71	57	68	38	21	5	2	147	431
Stanford Univ/CA	281	39	26	13	15	5	8	71	4	67	50	51	42	10	4	13	103	384
Yale University/CT	272	49	27	22	14	11	11	69	2	67	53	46	19	4	1	1	135	407
Florida, Univ of	265	26	11	15	5	11	2	82	23	59	27	59	53	7	11	8	163	428
Princeton Univ/NJ	264	58	50	8	12	22	7	48	-	48	32	31	54	20	14	3	87	351
SUNY at Buffalo	263	40	10	30	6	6	7	48	2	46	34	56	66	13	11	15	165	428
Iowa State Univ	259	22	10	12	6	1	6	107	50	57	25	18	74	15	12	11	79	338
Calif, U-San Diego	257	41	20	21	13	10	2	88	3	85	29	38	36	5	6	-	42	299
Calif, U-Santa Barb	256	22	8	14	18	7	2	77	4	73	47	55	28	6	7	7	133	389
Mass, U of-Amherst	240	25	10	15	9	6	2	89	23	66	29	44	36	8	4	6	151	391
Brown University/RI	237	30	11	19	11	7	16	51	-	51	30	58	34	1	8	6	68	305
Delaware, Univ of	233	36	7	29	13	5	1	68	14	54	32	27	51	19	9	7	67	300
Brigham Young U/UT	229	22	10	12	5	5	2	58	14	44	37	48	52	12	9	13	234	463
Missouri, U-Columbia	223	23	6	17	5	9	-	80	30	50	25	43	38	7	9	6	142	365
Duke University/NC	223	35	8	27	5	-	5	79	4	75	24	43	32	2	8	4	92	315
Rochester,Univ of/NY	221	33	15	18	15	6	2	65	2	63	16	60	24	11	4	1	82	303
Texas A&M University	220	21	10	11	9	4	4	83	34	49	8	12	79	11	13	16	77	297
SUNY at Stony Brook	219	29	14	15	9	8	5	42	3	39	26	78	22	-	8	3	74	293
VA Poly Inst&State U	216	21	4	17	12	2	2	66	20	46	10	16	87	10	11	21	47	263
Northwestern Univ/IL	213	25	12	13	6	11	5	55	1	54	33	38	40	6	6	7	125	338
NC, U of-Chapel Hill	212	60	14	46	8	5	1	50	3	47	37	36	15	4	1	2	154	366
Virginia, Univ of	209	35	20	15	8	9	8	36	-	36	25	25	63	13	10	10	83	292
Indiana U Bloomngton	208	30	10	20	12	4	12	50	4	46	49	47	4	1	-	-	242	450
Chicago, Univ of/IL	207	47	28	19	9	14	2	61	1	60	44	26	4	1	1	1	60	267
Cal Inst Technology	197	78	67	11	11	16	7	22	-	22	3	3	57	14	19	7	5	202
Rensselaer Poly I/NY	188	59	28	31	6	5	3	19	1	18	6	3	87	15	21	16	12	200
Colorado State Univ	185	18	4	14	3	1	-	96	36	60	23	25	19	3	2	2	79	264
Arizona, Univ of	182	23	13	10	11	3	2	50	15	35	31	38	24	2	8	4	116	298
Connecticut, Univ of	177	30	8	22	8	2	2	65	11	54	18	24	28	6	4	3	86	263
SUNY at Binghamton	177	19	6	13	6	7	7	41	-	41	26	68	3	1	-	-	61	238
Calif,U-Irvine	174	38	19	19	-	7	12	50	-	50	24	35	8	-	5	-	36	210
Boston University/MA	172	15	6	9	3	1	1	46	-	46	36	61	9	1	2	1	120	292
Kansas, Univ of	169	30	8	22	5	4	2	33	2	31	25	37	33	12	10	2	134	303
Calif, U-Santa Cruz	168	13	8	5	26	6	2	43	-	43	33	41	4	-	1	1	76	244
Notre Dame, U of/IN	165	30	11	19	7	7	2	42	-	42	18	21	38	14	5	3	53	218
Iowa, University of	163	19	11	8	5	3	2	44	2	42	30	38	22	6	3	5	149	312
Washington Univ/MO	160	20	10	10	7	4	6	52	2	50	27	19	25	9	5	5	62	222
Oberlin College/OH	159	18	7	11	5	5	4	40	2	38	40	41	6	-	3	-	121	280
Columbia Univ/NY	156	19	14	5	3	11	9	31	-	31	21	27	35	9	7	8	78	234
NC State U-Raleigh	154	15	2	13	5	5	-	55	19	36	3	9	62	12	10	13	31	185
Nebraska, U-Lincoln	151	16	4	12	-	3	4	68	32	36	19	23	18	1	4	4	132	283
Johns Hopkins U/MD	149	24	8	16	2	5	5	55	1	54	14	16	28	5	2	2	41	190
Tenn, U-Knoxville	145	12	3	9	-	3	2	47	24	23	17	24	40	8	9	4	116	261
SUNY at Albany	144	23	4	19	6	2	5	40	1	39	21	41	6	2	1	1	80	224
Utah, Univ of	143	24	9	15	5	5	4	28	-	28	20	24	33	7	5	10	108	251
Oklahoma State Univ	142	10	4	6	1	1	6	45	16	29	20	24	35	7	9	4	87	229
Carnegie Mellon U/PA	140	32	19	13	-	4	8	13	-	13	4	10	69	17	19	8	18	158
New York University	137	22	8	14	1	5	6	23	2	21	18	62	-	-	-	-	133	270
Pittsburgh, Univ of	137	21	5	16	4	2	3	24	1	23	23	28	32	6	9	7	146	283
CUNY-Queens Coll	136	14	4	10	4	1	6	16	2	14	30	64	1	1	-	-	138	274
Georgia, Univ of	135	24	4	20	4	1	3	55	25	30	18	25	5	-	-	-	134	269
LA St Univ & A&M C	133	11	4	7	-	3	2	51	24	27	19	18	29	4	3	8	95	228
Case Westrn Rsrve/OH	132	38	20	18	-	5	3	16	2	14	11	15	44	12	6	7	48	180
Cincinnati, U of/OH	131	18	4	14	2	-	2	26	2	24	16	26	41	5	6	7	107	238
Carleton College/MN	131	40	14	26	10	5	1	33	2	31	23	17	2	-	1	1	36	167
Rice University/TX	129	33	20	13	6	12	12	19	-	19	8	9	30	14	6	3	23	152
PR, U-Rio Piedras	129	43	6	37	-	4	-	32	4	28	20	23	7	1	1	2	148	277
Dartmouth College/NH	128	21	11	10	20	8	4	29	-	29	20	12	14	-	4	3	65	193
San Diego State U/CA	127	17	5	12	3	1	3	23	2	21	28	45	7	-	4	-	88	215
Miami University/OH	126	22	3	19	4	2	-	46	1	45	18	27	7	2	-	-	107	233
William & Mary, C/VA	126	28	9	19	15	1	3	25	1	24	21	23	10	2	-	-	71	197

See footnotes at end of table.

Table 11. Top 300 baccalaureate-origin institutions of science and engineering doctorates by major field(1): 1987-89--continued

	Field of doctorate																	
Institution of baccalaureate	Total sci & eng	Physical Sciences			Earth atmos & mar	Math	Comp/ info sci	Agric & Biol Sci			Soc sci	Psych	Engineering(2)				Non-sci & eng(3)	Total all flds
		Sub-total	Phys& astr	Chem-istry				Sub-total	Agri sci	Biol sci			Sub-total	Chem	Elec	Mech		
Auburn University/AL	126	12	6	6	2	6	4	45	14	31	11	16	30	3	5	3	81	207
Arizona State Univ	125	17	5	12	3	6	2	26	4	22	21	29	21	3	5	5	112	237
Illinois,U-Chicago	124	19	3	16	3	7	2	34	1	33	11	17	31	11	9	5	63	187
Syracuse Univ/NY	123	17	3	14	4	-	7	21	-	21	23	29	22	5	5	-	89	212
Florida State Univ	123	17	11	6	13	1	6	29	2	27	23	33	1	1	-	-	188	311
Kansas State Univ	121	7	2	5	-	1	1	67	29	38	12	8	25	6	2	4	77	198
Tufts University/MA	119	16	8	8	3	2	1	26	-	26	18	37	16	1	3	3	47	166
CUNY-City College	115	9	5	4	4	1	1	17	2	15	24	39	20	6	6	4	108	223
Swarthmore Coll/PA	115	24	16	8	7	3	3	22	-	22	35	13	8	1	3	-	45	160
Vermont, U of	111	18	1	17	5	2	1	39	8	31	11	22	13	1	1	3	38	149
Oklahoma, U of	111	11	7	4	2	2	2	21	-	21	22	22	29	10	6	3	89	200
Brandeis Univ/MA	109	14	5	9	2	2	1	32	1	31	19	36	3	-	2	-	55	164
Georgia Inst Tech	109	18	11	7	3	1	7	11	2	9	8	2	59	15	8	13	23	132
CUNY-Brooklyn Coll	108	9	-	9	-	2	4	15	-	15	16	62	-	-	-	-	125	233
Southern Ill Univ	108	6	3	3	1	-	-	48	20	28	23	20	10	-	4	1	148	256
New Mexico, Univ of	108	23	14	9	7	4	1	16	2	14	20	23	14	5	3	2	81	189
Kentucky, Univ of	107	10	-	10	4	1	-	42	20	22	15	13	22	3	5	6	92	199
Geo Washington U/DC	106	7	3	4	2	-	1	22	1	21	32	29	13	-	3	2	54	160
Calif, U-Riverside	106	12	3	9	8	4	1	33	8	25	24	20	4	2	-	-	42	148
Lehigh University/PA	105	18	7	11	6	1	1	21	1	20	5	6	47	17	7	7	15	120
Washington State U	105	11	2	9	-	4	3	39	15	24	23	8	17	2	5	2	52	157
Hawaii, Univ of	104	10	3	7	4	2	1	31	3	28	23	14	19	-	10	-	52	156
Oregon, Univ of	102	14	4	10	6	2	2	22	3	19	26	29	1	-	-	1	79	181
Cal St U-Northridge	101	12	5	7	3	2	1	20	-	20	17	43	3	-	-	1	74	175
Pomona College/CA	101	10	5	5	11	7	2	23	-	23	24	22	2	-	2	-	29	130
Boston College/MA	100	20	4	16	5	4	3	15	-	15	25	24	4	2	-	-	97	197
Wellesley College/MA	100	11	5	6	7	-	-	28	1	27	26	25	3	-	-	1	69	169
Rhode Island, U of	100	13	2	11	8	3	3	36	13	23	7	25	5	1	2	1	41	141
Texas Tech Univ	99	15	5	10	-	4	-	29	14	15	9	22	20	3	8	1	79	178
West Virginia Univ	96	8	2	6	2	2	1	28	11	17	12	18	25	8	6	3	91	187
Southern Calif, U of	96	14	3	11	2	3	3	14	1	13	19	20	21	-	11	-	65	161
Clemson Univ/SC	95	18	6	12	-	1	1	35	10	25	8	9	23	5	6	1	41	136
Reed College/OR	95	25	9	16	8	1	5	21	-	21	21	10	4	-	2	-	32	127
Temple University/PA	93	18	6	12	1	3	1	17	2	15	16	35	2	-	-	-	127	220
Miami, Univ of/FL	93	4	1	3	9	-	2	27	1	26	10	27	14	1	3	1	61	154
Oregon State Univ	93	9	3	6	4	1	1	54	14	40	13	3	8	2	-	3	42	135
Columbia-Barnard/NY	91	5	1	4	4	3	-	30	1	29	16	31	2	-	-	-	65	156
South Florida, U of	89	18	8	10	2	3	1	18	1	17	7	26	14	3	3	1	64	153
Cal St U-Long Beach	89	6	1	5	-	1	1	27	4	23	7	36	11	-	3	3	76	165
San Francisc St U/CA	88	6	1	5	5	2	-	18	-	18	15	39	3	-	2	-	81	169
Wayne State Univ/MI	86	18	3	15	4	1	4	12	1	11	14	21	12	4	5	-	130	216
Wesleyan Univ/CT	84	11	7	4	3	2	2	25	2	23	19	19	3	-	1	1	43	127
Bucknell Univ/PA	83	17	2	15	5	1	2	20	1	19	13	18	7	3	2	-	38	121
Ohio University	83	12	6	6	1	1	-	17	4	13	10	26	16	2	2	5	104	187
St Olaf College/MN	83	26	3	23	-	6	1	23	2	21	8	14	5	1	1	-	50	133
Humboldt State U/CA	83	9	1	8	8	3	-	44	18	26	6	2	11	-	-	-	21	104
Fordham Univ/NY	81	5	1	4	-	-	1	19	-	19	16	39	1	1	-	-	57	138
Emory Univ/GA	81	16	2	14	2	2	2	29	1	28	5	25	-	-	-	-	49	130
Houston, U of/TX	81	6	1	5	-	5	2	14	-	14	19	22	13	4	3	2	76	157
New Hampshire, U of	80	12	1	11	3	2	-	41	5	36	9	6	7	1	1	-	48	128
Michigan Tech Univ	80	8	3	5	5	5	1	13	5	8	-	-	48	8	7	7	9	89
Utah State Univ	80	14	8	6	1	3	6	34	16	18	7	5	10	-	2	1	36	116
Vanderbilt Univ/TN	79	13	5	8	2	1	3	16	-	16	7	19	18	3	3	1	57	136
Cal Pol S U-Sl Obisp	79	22	6	16	-	1	1	27	10	17	4	3	21	-	5	5	23	102
Williams College/MA	78	10	5	5	5	2	3	24	-	24	19	14	1	-	-	-	33	111
Arkansas,U-Fayettvle	78	11	3	8	5	-	2	15	12	3	12	10	23	5	5	3	59	137
Maine, U-Orono	77	11	4	7	5	-	-	39	11	28	5	7	10	3	1	2	27	104
Amherst College/MA	77	9	5	4	4	1	3	23	2	21	21	12	4	1	2	-	37	114
Montana State Univ	77	9	3	6	3	4	1	26	12	14	8	11	15	6	3	-	28	105
Smith College/MA	76	7	2	5	3	-	-	23	-	23	19	24	-	-	-	-	75	151
Frnkln&Marshal C/PA	76	18	5	13	8	1	1	18	-	18	8	17	5	-	-	1	21	97
Northern Ill Univ	76	19	-	19	6	4	-	20	3	17	16	10	1	-	-	-	98	174
New Mexico State U	76	6	2	4	5	3	4	36	22	14	6	2	14	2	8	3	30	106
Mississippi State U	75	2	-	2	2	2	3	29	15	14	7	4	26	1	6	1	60	135
Tulane U of LA	75	4	2	2	1	1	3	20	-	20	13	19	14	4	3	3	25	100
Akron, U of/OH	74	16	4	12	4	1	1	12	-	12	5	12	23	12	-	4	60	134
Vassar College/NY	73	4	2	2	2	3	2	12	1	11	19	29	2	-	-	1	45	118
Loyola U Chicago/IL	73	17	1	16	-	1	1	15	-	15	8	29	2	-	-	1	56	129
Wisconsin,U-Milwauke	73	9	2	7	5	-	1	15	2	13	12	20	11	1	2	3	65	138
Clark University/MA	72	10	3	7	-	-	1	14	-	14	17	28	2	1	-	-	24	96
Northeastern U/MA	72	6	3	3	2	2	3	17	1	16	6	12	24	2	9	5	47	119
Georgetown Univ/DC	72	6	3	3	-	-	-	13	1	12	34	18	1	-	1	-	71	143
Harvey Mudd Coll/CA	72	45	24	21	4	8	2	3	-	3	-	-	10	4	2	2	1	73
Texas,U-Arlington	70	10	4	6	-	6	2	12	-	12	8	15	17	-	3	2	39	109
Idaho, Univ of	70	11	3	8	3	2	-	30	14	16	4	4	16	5	3	1	34	104
Cal St U-Fullerton	70	5	2	3	2	2	1	11	-	11	13	35	1	-	-	-	57	127
Marquette Univ/WI	69	8	3	5	1	4	1	13	-	13	10	19	13	-	5	2	54	123
South Carolina, U of	69	12	3	9	4	1	-	12	1	11	18	9	13	3	2	2	86	155
Bryn Mawr Coll/PA	68	11	5	6	3	3	-	20	1	19	20	9	2	-	-	-	35	103
San Jose State U/CA	67	9	2	7	3	-	1	13	1	12	8	21	12	5	1	-	76	143

See footnotes at end of table.

Table 11. Top 300 baccalaureate-origin institutions of science and engineering doctorates by major field(1): 1987-89--continued

	Field of doctorate																	
Institution of baccalaureate	Total sci & eng	Physical Sciences			Earth atmos & mar	Math	Comp/ info sci	Agric & Biol Sci			Soc sci	Psych	Engineering(2)				Non-sci & eng(3)	Total all flds
		Sub-total	Phys& astr	Chem-istry				Sub-total	Agri sci	Biol sci			Sub-total	Chem	Elec	Mech		
Wyoming, Univ of	66	7	2	5	3	1	1	18	5	13	8	6	22	2	3	5	33	99
Illinois St U-Normal	65	11	-	11	1	1	2	19	5	14	13	17	1	-	-	-	109	174
Baylor Univ/TX	65	14	5	9	5	-	1	20	3	17	9	15	1	-	-	-	112	177
Dayton, U of/OH	64	8	4	4	2	1	1	16	4	12	7	13	16	4	7	3	40	104
Cal St U-Los Angeles	64	6	1	5	1	1	1	7	-	7	16	27	5	-	1	-	92	156
Colgate U/NY	63	15	3	12	7	-	-	19	1	18	14	8	-	-	-	-	28	91
Haverford Coll/PA	63	9	6	3	3	3	1	18	-	18	16	11	2	-	-	1	21	84
Missouri,U-Rolla	63	7	4	3	3	2	1	1	-	1	1	2	46	13	7	1	4	67
Bowling Green S U/OH	62	5	1	4	4	2	3	20	2	18	11	16	1	-	-	-	107	169
Wheaton College/IL	62	13	3	10	3	3	-	14	3	11	7	22	-	-	-	-	84	146
Macalester Coll/MN	62	5	1	4	6	1	1	14	2	12	18	16	1	-	-	-	28	90
Alabama, Univer of	62	11	5	6	-	1	1	12	1	11	9	17	11	1	2	4	124	186
CUNY-Hunter College	61	4	2	2	2	5	2	4	-	4	13	31	-	-	-	-	130	191
Kalamazoo College/MI	60	17	-	17	-	2	1	24	2	22	6	8	2	1	-	1	20	80
Oakland Univ/MI	60	10	5	5	-	2	1	18	-	18	5	14	10	-	1	2	27	87
Cal St U-Fresno	60	8	2	6	4	1	3	12	3	9	10	15	7	-	-	1	57	117
Occidental Coll/CA	60	13	5	8	3	2	-	13	-	13	13	13	3	1	-	1	31	91
Western Michigan U	59	7	1	6	2	6	2	12	2	10	10	17	3	-	1	-	87	146
USAF Academy/CO	59	8	3	5	2	-	5	5	-	5	4	5	30	-	9	2	12	71
Cal St U-Sacramento	59	9	1	8	1	3	1	6	1	5	9	20	10	-	3	1	48	107
Middlebury Coll/VT	58	4	1	3	8	5	1	17	3	14	14	9	-	-	-	-	32	90
Mt Holyoke Coll/MA	58	14	2	12	1	-	-	21	1	20	4	15	3	-	1	-	56	114
Wake Forest Univ/NC	58	10	3	7	-	2	2	22	-	22	6	12	4	-	2	1	46	104
Montana, Univ of	58	4	1	3	4	-	1	23	9	14	13	12	1	-	-	-	31	89
Union University/NY	57	9	1	8	-	1	-	13	-	13	6	19	9	2	-	2	13	70
Hope College/MI	56	25	9	16	2	-	-	15	1	14	3	10	1	-	-	-	14	70
Drexel University/PA	55	10	3	7	1	-	-	14	1	13	3	2	25	4	3	4	12	67
Illinois Inst Tech	55	14	10	4	-	2	4	3	-	3	-	2	30	5	5	6	8	63
Kent State Univ/OH	54	9	9	-	2	-	2	15	4	11	10	14	2	-	-	1	107	161
Sthrn Methodist U/TX	54	6	3	3	2	2	-	3	-	3	10	20	11	1	3	1	50	104
Colorado College	54	4	1	3	6	1	2	18	1	17	14	8	1	1	-	-	17	71
St Lawrence Univ/NY	53	6	1	5	4	1	1	21	1	20	8	9	3	-	-	-	18	71
Antioch College/OH	53	4	2	2	1	2	1	13	1	12	12	15	5	1	3	1	25	78
Wooster, Coll of/OH	53	14	2	12	3	4	-	13	1	12	7	11	1	-	-	-	45	98
North Dakota St Univ	53	9	1	8	4	2	-	15	9	6	5	10	8	1	-	4	24	77
Howard University/DC	53	4	-	4	-	2	-	13	1	12	18	11	5	1	3	-	58	111
Clarkson Univ/NY	52	10	1	9	-	2	3	4	-	4	1	1	31	8	4	9	1	53
Louisville, U of/KY	52	10	3	7	1	5	-	13	-	13	5	6	12	3	1	2	33	85
Western Washington U	52	11	5	6	8	2	1	7	1	6	10	12	1	-	-	-	43	95
Hofstra Univ/NY	51	3	-	3	-	-	3	9	-	9	7	26	3	1	1	-	30	81
Allegheny College/PA	51	16	1	15	6	1	1	14	-	14	5	8	-	-	-	-	18	69
Muhlenberg Coll/PA	51	11	4	7	1	1	-	21	1	20	4	11	2	-	-	-	11	62
Worcester Poly I/MA	50	21	10	11	1	1	-	6	-	6	-	1	20	5	5	6	4	54
Florida Atlantic U	50	4	3	1	2	1	3	7	-	7	11	16	6	-	1	1	35	85
Calvin College/MI	49	10	3	7	-	2	3	16	2	14	4	10	4	-	2	-	46	95
Missouri,U-St Louis	49	13	3	10	-	2	-	9	-	9	6	16	3	-	-	1	25	74
South Dakota State U	49	6	3	3	2	2	-	24	13	11	1	4	10	-	2	-	28	77
North Texas, Univ of	49	1	-	1	-	1	2	10	1	9	12	20	3	-	1	1	104	153
US Military Academy	48	4	2	2	-	1	3	1	-	1	12	3	24	-	4	3	36	84
Grinnell College/IA	48	15	3	12	-	2	1	11	1	10	10	7	2	1	-	1	25	73
Cal St U-Chico	48	5	-	5	3	2	-	13	5	8	10	11	4	1	1	-	36	84
Fairfield Univ/CT	47	13	2	11	-	2	-	17	-	17	6	8	1	-	1	-	13	60
Eastern Ill Univ	47	5	1	4	-	1	-	24	7	17	9	7	1	-	-	-	55	102
American Univ/DC	47	2	1	1	2	-	-	5	1	4	28	10	-	-	-	-	36	83
Davidson College/NC	47	14	3	11	-	1	-	10	1	9	4	14	4	-	-	1	32	79
PR, U-Mayaguez	47	13	3	10	-	1	-	17	8	9	3	2	11	1	1	2	16	63
SUNY Coll Oswego	46	13	2	11	2	-	1	15	1	14	7	8	-	-	-	-	34	80
Indiana Univ of PA	46	11	1	10	4	1	-	15	-	15	6	8	1	-	-	-	87	133
Holy Cross, C of/MA	45	18	2	16	-	-	-	8	-	8	7	11	1	-	-	-	23	68
Furman Univ/SC	45	19	-	19	3	3	1	6	1	5	5	8	-	-	-	-	43	88
Cntrl Florida, U/FL	45	10	5	5	2	1	3	9	-	9	6	9	5	-	1	-	27	72
Colorado Sch Mines	45	9	5	4	12	1	-	-	-	-	-	-	23	6	3	1	-	45
Bates College/ME	44	10	2	8	2	2	-	14	-	14	5	9	2	-	-	-	13	57
Lowell, Univ of/MA	44	21	6	15	3	1	1	7	-	7	-	2	9	1	2	1	13	57
Gustav Adolphus C/MN	44	13	-	13	3	2	-	10	-	10	3	12	1	-	-	-	17	61
Mass, U-Boston	43	9	2	7	-	2	1	10	1	9	8	12	1	-	-	-	42	85
SUNY Envr Sci Frstry	43	5	-	5	5	-	-	28	9	19	1	-	4	1	-	-	3	46
Earlham College/IN	43	4	2	2	2	3	-	15	1	14	8	11	-	-	-	-	24	67
St Louis Univ/MO	43	6	1	5	4	2	2	9	1	8	5	13	2	-	-	-	59	102
Wichita St Univ/KS	43	8	2	6	-	1	1	10	-	10	6	5	12	-	3	4	43	86
Santa Clara Univ/CA	43	11	3	8	-	4	2	8	-	8	8	4	6	1	1	2	18	61
Toledo, Univ of/OH	42	4	3	1	2	2	-	10	1	9	3	14	7	1	2	1	54	96
Ball State Univ/IN	42	4	2	2	1	1	1	10	3	7	12	12	1	-	-	-	98	140
North Dakota, U of	42	7	1	6	-	1	-	9	-	9	8	9	8	1	3	1	30	72
VA Commonwealth Univ	42	10	2	8	1	2	-	9	1	8	5	15	-	-	-	-	44	86
Memphis State U/TN	42	5	3	2	-	-	1	10	-	10	7	14	5	-	-	2	61	103
SUNY Coll Potsdam	41	14	3	11	2	-	3	11	-	11	6	3	2	1	-	-	27	68
Cleveland St Univ/OH	41	12	1	11	1	1	2	5	1	4	3	6	11	4	1	3	18	59
Wisconsin,U-Stevn Pt	41	4	-	4	3	-	-	19	4	15	4	8	3	-	-	-	33	74
Catholic U Amer/DC	41	7	4	3	1	1	-	9	1	8	2	9	12	1	4	3	35	76

See footnotes at end of table.

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Table 11. Top 300 baccalaureate-origin institutions of science and engineering doctorates by major field(1): 1987-89--continued

Institution of baccalaureate	Total sci & eng	Physical Sciences Sub-total	Phys& astr	Chem-istry	Earth atmos & mar	Math	Comp/ info sci	Agric & Biol Sci Sub-total	Agri sci	Biol sci	Soc sci	Psych	Engineering(2) Sub-total	Chem	Elec	Mech	Non-sci & eng(3)	Total all flds
Old Dominion Univ/VA	41	4	3	1	4	1	3	7	1	6	9	7	6	1	-	3	44	85
Cal St Poly-Pomona	41	5	2	3	2	1	1	16	3	13	6	5	5	1	3	-	24	65
Adelphi Univ/NY	40	1	-	1	2	-	-	16	1	15	4	17	-	-	-	-	42	82
St Johns U-Queens/NY	40	2	1	1	1	-	-	13	1	12	7	16	1	-	-	-	51	91
Wright State Univ/OH	40	8	6	2	-	1	-	11	-	11	4	9	7	-	2	1	29	69
Central Michigan U	40	9	-	9	-	-	2	16	-	16	4	8	1	1	-	-	67	107
Tennessee Tech U	40	4	1	3	1	-	1	9	6	3	1	4	20	1	6	8	21	61
Denver, Univ of/CO	40	2	1	1	2	1	1	6	1	5	11	14	3	-	2	-	35	75
Portland State U/OR	40	3	-	3	4	1	-	10	-	10	14	5	3	-	1	1	34	74
Bowdoin College/ME	39	11	4	7	2	2	-	14	-	14	6	1	3	-	-	-	17	56
Texas, U-El Paso	39	2	1	1	2	2	1	9	2	7	2	10	11	-	3	2	42	81
SUNY Coll Fredonia	38	14	1	13	2	-	-	7	1	6	9	5	1	-	-	-	30	68
La Salle Univ/PA	38	8	3	5	-	1	2	6	-	6	6	13	2	1	-	-	24	62
Villanova Univ/PA	38	9	4	5	1	-	-	13	1	12	1	6	8	3	2	1	34	72
Wisconsin,U-E Claire	38	13	3	10	4	-	-	9	1	8	3	8	1	-	-	-	36	74
South Dakota, U of	38	4	-	4	1	2	2	9	1	8	6	10	4	-	2	-	30	68
Creighton Univ/NE	38	9	3	6	-	1	-	7	-	7	5	13	3	-	3	-	20	58
James Madison U/VA	38	13	1	12	-	-	-	9	1	8	6	10	-	-	-	-	34	72
Northern Arizona U	38	8	1	7	3	1	1	14	-	14	3	6	2	-	-	2	43	81
Nevada, Univ of	38	5	2	3	3	2	1	15	3	12	5	5	2	-	-	1	18	56
Colby College/ME	37	12	4	8	5	1	-	6	-	6	7	5	1	-	-	-	20	57
Gettysburg Coll/PA	37	9	5	4	-	1	1	12	4	8	2	9	3	-	1	-	20	57
St. Josephs Univ/PA	37	13	2	11	-	1	-	9	-	9	7	7	-	-	-	-	23	60
Mississippi, Univ of	37	5	2	3	-	2	-	11	1	10	6	5	8	-	3	1	39	76
New Orleans,U of/LA	37	2	-	2	-	1	3	7	1	6	10	10	4	1	1	-	28	65
Hamilton College/NY	36	5	2	3	2	1	-	8	-	8	9	10	1	-	-	-	14	50
Manhattan College/NY	36	8	3	5	1	-	2	9	-	9	2	6	8	3	1	1	20	56
Polytechnic Univ/NY	36	5	4	1	1	2	3	2	-	2	-	1	22	2	8	1	1	37
Dickinson Coll/PA	36	12	4	8	5	-	1	9	-	9	3	5	1	1	-	-	22	58
Juniata College/PA	36	13	2	11	2	1	-	14	1	13	1	4	1	-	-	-	16	52
Youngstown St U/OH	36	3	1	2	1	-	2	6	-	6	7	9	8	3	4	-	50	86
Western Illinois U	36	5	-	5	2	-	-	18	6	12	7	4	-	-	-	-	52	88
Beloit College/WI	36	5	2	3	2	1	1	7	1	6	15	5	-	-	-	-	21	57
SW Missouri St Univ	36	7	1	6	-	2	1	9	6	3	6	10	1	-	-	-	49	85
Florida Inst Tech	36	5	4	1	7	-	-	14	2	12	1	1	8	1	2	1	3	39
Trinity College/CT	35	8	1	7	1	-	1	10	-	10	2	8	5	-	2	1	19	54
Lafayette College/PA	35	5	3	2	1	2	-	11	-	11	1	6	9	2	3	1	12	47
Scranton, U of/PA	35	4	-	4	-	1	-	19	1	18	3	7	1	-	-	1	10	45
Kenyon College/OH	35	10	2	8	-	1	2	10	-	10	8	3	1	1	-	-	17	52
Georgia State Univ	35	4	1	3	2	1	-	5	1	4	12	11	-	-	-	-	45	80
Hampshire Coll/MA	34	2	2	-	-	1	-	9	1	8	9	12	1	-	-	1	14	48
SUNY Coll Plattsburg	34	7	1	6	-	1	-	10	1	9	6	7	3	-	2	-	26	60
Fairleigh Dickn U/NJ	34	8	-	8	-	-	2	7	1	6	3	14	-	-	-	-	17	51
St Johns Univ/MN	34	8	2	6	2	3	-	10	3	7	5	3	3	1	-	-	23	57
US Naval Academy/MD	34	3	3	-	5	1	1	1	1	-	6	2	15	-	3	6	16	50
Northern Colorado,U	34	3	-	3	1	-	-	10	4	6	5	14	1	-	-	-	68	102
Alfred University/NY	33	3	2	1	1	-	-	3	1	2	2	5	19	-	-	-	13	46
Columbia U-Col C/NY	33	5	5	-	1	2	3	11	2	9	7	2	2	1	-	-	18	51
SUNY Coll Cortland	33	7	1	6	1	-	-	10	1	9	7	8	-	-	-	-	43	76
Denison Univ/OH	33	3	-	3	1	-	-	7	-	7	10	9	3	-	1	1	30	63
Xavier Univ/OH	33	10	1	9	1	1	1	8	-	8	4	6	2	-	1	-	17	50
Lawrence Univ/WI	33	7	2	5	3	-	1	12	1	11	5	4	1	-	1	-	35	68
NC, U of-Greensboro	33	6	-	6	-	3	-	6	-	6	5	13	-	-	-	-	59	92
Southern Miss, U of	33	3	-	3	-	-	3	7	1	6	3	16	1	-	-	-	70	103
Sowestern LA, U of	33	1	1	-	-	4	5	6	4	2	5	8	4	-	-	3	28	61
S F Austin St U/TX	33	5	2	3	1	3	2	13	3	10	2	6	1	-	1	-	33	66
Radcliffe C/MA	32	2	1	1	-	1	-	4	-	4	15	9	1	-	-	-	36	68
Seton Hall Univ/NJ	32	7	2	5	1	1	-	9	1	8	2	12	-	-	-	-	42	74
Wittenberg Univ/OH	32	6	1	5	2	1	-	11	1	10	6	3	3	1	-	-	28	60
Knox College/IL	32	5	1	4	2	3	2	9	1	8	6	4	1	-	-	1	16	48
Towson State U/MD	32	5	1	4	1	1	-	6	2	4	6	13	-	-	-	-	45	77
George Mason U/VA	32	7	3	4	-	2	-	8	-	8	6	9	-	-	-	-	11	43
Charleston, C of/SC	32	10	1	9	1	-	-	12	-	12	3	6	-	-	-	-	5	37
Puget Sound, U of/WA	32	8	2	6	2	2	-	12	-	12	1	6	1	-	-	-	18	50
Whitman College/WA	32	10	3	7	1	2	-	8	2	6	8	2	1	-	1	-	14	46

(1) The top 300 institutions are ranked according to the number of S/E doctorates who earned a baccalaureate in the U.S. (50 states, D.C., and Puerto Rico) and who provided data on baccalaureate institution. Baccalaureate institution was not known for 5.8 percent of S/E doctorates in 1987-1989.

(2) Subtotal includes engineering fields not separately shown.

(3) Non-science/engineering doctorates in this table include doctorates who field of specialization is unclassified.

SOURCE: Survey of Earned Doctorates

Table 12. State of high school last attended and State of doctorate-granting institution for science and engineering doctorates(1): 1989

State of high school	Total	State of doctoral institution AL	AK	AZ	AR	CA	CO	CT	DE	DC	FL	GA	HI	ID	IL	IN	IA
Total, all States	12072	115	9	170	33	1702	256	221	62	141	320	279	51	21	723	326	172
Alabama	101	36	-	2	-	7	1	-	-	-	6	2	-	-	2	2	1
Alaska	10	-	-	-	-	2	-	-	-	-	-	1	-	1	1	-	-
Arizona	90	-	-	21	-	13	2	1	-	1	-	1	-	-	3	4	-
Arkansas	65	3	-	-	7	1	2	2	-	-	-	4	-	-	5	-	2
California	1286	5	1	22	1	628	23	26	2	10	17	13	6	3	43	18	3
Colorado	185	-	1	3	1	38	43	2	-	-	1	3	-	1	11	3	3
Connecticut	258	-	1	3	-	27	2	44	2	5	1	6	1	-	6	3	1
Delaware	81	-	-	-	-	10	4	-	13	-	1	-	-	-	1	1	-
Florida	305	11	1	1	1	31	5	2	-	-	86	15	2	-	14	6	-
Georgia	126	8	-	2	-	4	-	-	-	-	5	46	1	-	2	-	1
Hawaii	38	-	-	-	-	14	1	-	-	1	1	-	6	-	3	-	1
Idaho	38	1	-	-	-	5	-	-	-	1	1	-	-	2	4	-	1
Illinois	776	6	-	13	5	89	11	9	3	6	13	13	2	-	259	38	19
Indiana	243	3	-	1	2	22	2	-	1	2	5	3	3	-	24	57	4
Iowa	180	1	-	3	1	14	1	-	1	1	3	4	1	-	7	7	53
Kansas	110	2	-	4	1	5	4	1	-	1	-	1	-	-	4	5	7
Kentucky	111	4	-	2	-	6	1	-	-	-	7	7	-	-	4	3	1
Louisiana	121	-	-	-	-	10	-	-	-	1	1	4	-	-	5	2	1
Maine	47	-	-	-	-	6	2	2	-	-	1	-	-	-	-	-	-
Maryland	329	-	-	6	-	33	9	6	9	19	6	7	1	1	12	6	2
Massachusetts	478	-	1	1	1	60	5	12	1	7	9	4	2	-	21	6	2
Michigan	403	-	-	8	2	42	4	4	-	2	8	9	-	-	21	15	1
Minnesota	297	2	-	4	-	37	9	4	1	1	4	3	1	1	25	12	12
Mississippi	57	2	-	-	2	2	-	-	-	1	2	2	-	-	1	2	-
Missouri	241	1	-	6	2	23	3	2	-	-	9	2	3	1	13	7	3
Montana	57	-	-	2	-	7	7	1	-	-	1	1	1	2	4	2	-
Nebraska	106	1	-	4	-	15	4	1	-	1	2	-	-	-	4	1	7
Nevada	31	-	-	-	-	6	1	-	-	-	-	-	-	1	-	2	1
New Hampshire	54	-	-	-	-	10	1	4	2	1	-	-	-	-	1	1	-
New Jersey	610	-	-	5	-	54	12	13	8	9	14	9	3	-	24	10	2
New Mexico	90	-	1	4	-	16	8	2	-	-	2	-	1	-	4	2	-
New York	1432	9	1	9	3	131	19	33	4	22	36	21	6	1	43	25	8
North Carolina	235	3	-	-	-	15	2	1	2	4	10	17	1	-	10	4	-
North Dakota	40	-	-	1	-	3	3	1	-	-	1	1	1	-	1	1	-
Ohio	606	2	-	4	2	46	11	7	1	-	12	11	-	1	36	23	8
Oklahoma	116	-	-	-	-	10	4	2	-	1	2	4	1	-	1	4	2
Oregon	88	-	1	3	-	15	3	1	-	-	1	2	1	2	5	2	1
Pennsylvania	861	5	-	9	1	69	13	11	9	9	17	18	2	1	30	19	6
Rhode Island	47	1	-	1	-	5	1	5	1	1	1	-	-	-	-	-	-
South Carolina	91	2	-	2	-	5	1	1	-	-	4	12	-	-	2	1	1
South Dakota	43	-	-	1	-	2	1	-	-	-	1	-	-	-	3	2	5
Tennessee	142	4	-	-	-	10	1	3	-	4	3	11	-	-	6	5	-
Texas	412	1	-	4	1	27	6	7	1	2	6	5	1	-	8	8	2
Utah	75	-	-	6	-	12	3	-	-	-	-	1	-	-	3	1	-
Vermont	24	-	-	-	-	4	1	1	-	-	-	-	-	-	-	1	-
Virginia	295	-	-	4	-	18	10	1	1	20	10	10	1	1	9	7	3
Washington	185	-	1	4	-	39	3	4	-	1	-	-	2	2	9	4	-
West Virginia	54	-	-	1	-	5	-	2	-	-	-	-	-	-	3	-	-
Wisconsin	265	1	-	4	-	33	4	2	-	1	2	5	1	-	17	2	6
Wyoming	22	-	-	-	-	1	2	-	-	1	1	-	-	-	3	2	-
District of Columbia	38	-	-	-	-	11	-	-	-	5	-	1	-	-	3	-	-
Puerto Rico	77	1	-	-	-	4	1	1	-	-	7	-	-	-	3	-	2

See footnote at end of table.

Table 12. State of high school last attended and State of doctorate-granting institution for science and engineering doctorates(1): 1989--continued

State of high school	State of doctoral institution																	
	KS	KY	LA	ME	MD	MA	MI	MN	MS	MO	MT	NE	NV	NH	NJ	NM	NY	NC
Total, all States	128	95	126	13	241	561	319	205	63	201	28	88	14	46	233	81	1188	358
Alabama	-	1	2	-	3	2	1	-	4	-	-	-	-	-	-	-	3	3
Alaska	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Arizona	2	2	-	-	1	3	-	-	-	1	-	-	1	-	-	2	6	5
Arkansas	2	-	4	-	-	-	1	-	2	2	-	-	2	-	-	-	2	2
California	6	-	3	2	13	46	22	11	2	12	2	3	2	5	13	8	65	13
Colorado	3	-	1	-	3	4	5	2	1	1	-	2	-	1	2	1	2	2
Connecticut	2	1	1	-	10	21	5	-	-	4	-	1	-	3	5	-	36	3
Delaware	-	-	2	-	4	1	2	-	-	-	-	-	-	-	1	-	4	4
Florida	2	3	4	-	7	13	4	3	4	3	-	1	-	-	1	1	11	16
Georgia	-	2	4	-	2	4	1	-	-	2	-	2	1	-	-	2	6	8
Hawaii	-	-	-	-	-	2	1	1	-	-	-	-	-	-	1	-	-	-
Idaho	-	-	-	-	-	1	-	-	-	-	1	1	-	-	-	1	-	-
Illinois	9	5	5	1	4	27	14	17	2	15	2	9	-	3	7	6	24	12
Indiana	2	7	1	-	3	9	6	3	1	7	2	-	-	-	1	1	14	3
Iowa	6	-	2	-	1	3	2	12	1	3	-	5	-	1	1	3	9	1
Kansas	22	2	-	-	2	2	1	1	-	6	-	3	-	-	1	3	4	1
Kentucky	-	23	-	-	-	1	3	1	1	1	-	-	-	1	1	1	5	8
Louisiana	1	-	41	1	-	1	1	-	8	1	-	1	-	-	1	-	3	1
Maine	-	2	-	1	-	6	4	1	-	-	-	-	-	-	-	-	6	2
Maryland	6	3	4	-	56	10	3	1	1	3	1	1	-	1	4	1	27	16
Massachusetts	2	2	1	-	12	115	4	4	-	7	-	-	-	7	11	1	69	12
Michigan	4	2	2	-	7	18	113	7	-	2	2	2	-	-	7	2	20	8
Minnesota	-	1	3	-	2	6	4	59	-	6	-	2	4	1	1	3	12	3
Mississippi	1	1	6	-	1	-	-	1	18	1	-	1	-	-	1	1	1	1
Missouri	12	2	2	-	1	8	2	4	4	63	-	4	-	1	1	1	9	5
Montana	2	-	-	-	-	1	-	-	-	-	4	1	-	-	-	-	-	-
Nebraska	3	1	-	-	1	2	-	1	-	4	1	30	-	-	1	1	4	-
Nevada	1	-	-	-	1	1	-	-	-	-	-	-	2	-	-	1	1	-
New Hampshire	-	-	-	-	1	5	1	1	-	-	-	-	-	2	1	-	8	-
New Jersey	4	5	6	2	14	43	14	4	2	3	2	2	-	3	89	6	83	17
New Mexico	-	-	-	-	2	4	1	1	-	-	-	-	-	-	1	18	4	1
New York	4	3	5	5	29	78	28	19	-	14	-	3	-	8	37	-	549	39
North Carolina	-	3	1	-	4	8	1	-	3	1	-	-	-	-	5	1	13	81
North Dakota	1	1	-	-	1	1	-	3	-	3	-	1	-	-	-	-	1	2
Ohio	3	3	2	-	5	21	24	9	-	10	3	-	-	2	3	3	36	8
Oklahoma	5	2	-	-	1	2	1	-	-	4	-	-	-	-	-	2	1	2
Oregon	-	1	1	-	-	5	3	-	-	-	-	-	-	-	-	2	3	2
Pennsylvania	9	4	5	1	18	37	21	9	2	8	2	4	1	1	18	2	67	24
Rhode Island	-	-	-	-	-	3	1	1	-	-	-	-	-	-	1	-	4	1
South Carolina	-	1	1	-	2	3	-	-	-	-	-	-	-	-	1	1	2	2
South Dakota	2	-	-	-	-	-	1	1	-	-	2	1	-	1	-	-	-	1
Tennessee	-	-	2	-	1	-	1	4	-	1	-	-	-	-	2	-	2	13
Texas	6	2	5	-	4	9	2	3	3	2	-	4	-	-	3	3	8	5
Utah	-	-	1	-	1	2	1	2	1	1	2	-	-	-	-	-	5	1
Vermont	1	-	-	-	-	3	2	1	1	-	-	-	-	-	-	-	3	-
Virginia	-	4	2	-	13	10	1	2	1	1	1	1	-	-	3	1	12	17
Washington	1	3	-	-	2	9	2	3	-	2	-	1	1	2	1	-	12	2
West Virginia	1	2	-	-	-	1	3	-	1	1	-	-	-	1	-	-	1	3
Wisconsin	1	1	2	-	4	9	8	13	-	4	1	1	-	2	2	1	17	3
Wyoming	1	-	-	-	1	1	-	-	-	1	-	-	-	-	-	-	1	-
District of Columbia	-	-	-	-	4	-	2	-	-	1	-	1	-	-	-	1	1	1
Puerto Rico	-	-	5	-	-	-	1	-	-	-	-	-	-	-	5	-	12	4

See footnote at end of table.

Table 12. State of high school last attended and State of doctorate-granting institution for science and engineering doctorates(1): 1989--continued

State of high school	State of doctoral institution																	
	ND	OH	OK	OR	PA	PR	RI	SC	SD	TN	TX	UT	VT	VA	WA	WV	WI	WY
Total, all States	30	439	101	124	599	12	106	109	18	180	691	131	31	270	264	29	312	37
Alabama	-	2	1	-	1	-	-	3	-	5	9	-	-	2	-	-	-	-
Alaska	-	-	-	-	-	-	-	-	-	-	2	-	-	-	1	-	-	-
Arizona	-	-	-	6	-	-	-	-	-	-	8	1	-	1	3	-	2	-
Arkansas	1	-	5	-	2	-	-	-	-	3	9	1	-	-	-	-	1	-
California	1	11	1	29	19	-	11	3	-	7	39	30	-	11	50	1	22	2
Colorado	-	4	1	3	2	-	1	-	1	1	13	2	-	1	7	-	6	3
Connecticut	-	2	-	2	20	-	4	3	1	3	4	3	4	8	6	1	2	1
Delaware	-	3	-	-	14	-	2	1	-	-	3	1	-	7	1	-	1	-
Florida	-	3	2	1	4	-	2	5	1	10	17	1	-	8	2	-	1	-
Georgia	-	2	-	1	3	-	-	7	-	4	4	-	-	2	-	-	-	-
Hawaii	-	-	-	-	-	-	1	-	-	-	2	-	-	1	2	-	-	-
Idaho	-	-	-	4	2	-	-	-	-	1	1	9	-	-	1	-	1	-
Illinois	2	13	4	5	13	-	3	2	-	7	27	5	-	8	11	1	25	2
Indiana	-	5	1	2	7	-	-	1	-	4	13	2	-	4	5	-	8	2
Iowa	-	5	2	-	3	-	1	-	1	-	5	1	-	-	3	-	11	1
Kansas	1	3	1	2	1	-	-	1	1	1	9	1	-	-	5	-	1	-
Kentucky	-	11	2	-	3	-	-	1	-	4	3	1	-	2	-	-	2	1
Louisiana	-	-	2	3	-	-	1	2	-	2	20	1	-	3	1	-	2	-
Maine	-	1	1	-	-	-	2	1	-	1	3	-	-	1	2	1	1	-
Maryland	-	5	-	4	19	-	4	2	-	-	9	1	1	11	6	2	9	1
Massachusetts	1	10	1	2	18	-	24	-	1	2	12	2	2	8	7	-	9	-
Michigan	-	19	4	5	7	-	2	3	1	4	19	2	1	3	5	-	16	-
Minnesota	10	7	-	3	2	-	1	1	2	3	11	5	1	2	9	1	15	1
Mississippi	-	1	-	-	-	-	-	-	-	2	5	-	-	1	-	-	-	-
Missouri	-	5	3	-	4	-	1	-	-	3	15	5	-	2	5	-	4	-
Montana	-	1	-	-	-	-	-	-	1	-	4	1	-	-	7	1	1	5
Nebraska	1	-	-	1	1	-	-	-	1	-	5	-	-	3	1	-	3	1
Nevada	-	2	1	1	1	-	-	-	-	-	2	4	-	1	-	-	1	-
New Hampshire	-	3	-	-	1	-	3	-	-	-	3	1	-	2	1	-	-	1
New Jersey	-	16	1	5	51	-	4	8	-	6	11	1	4	11	11	2	15	2
New Mexico	-	-	-	1	-	-	-	-	-	1	7	2	-	-	5	-	2	-
New York	1	30	5	6	70	-	12	5	1	7	27	3	10	23	16	3	20	1
North Carolina	-	2	1	-	1	-	1	7	-	6	10	1	-	13	-	-	3	-
North Dakota	7	-	-	-	1	-	-	1	1	-	2	-	-	-	-	-	1	-
Ohio	1	205	1	1	21	-	4	1	-	9	23	5	-	13	7	1	16	2
Oklahoma	-	-	37	-	1	-	1	-	-	4	14	3	-	3	-	-	1	1
Oregon	-	-	-	15	-	-	1	-	-	-	7	1	-	-	9	-	1	-
Pennsylvania	-	38	5	6	246	-	4	3	1	16	29	3	1	23	9	5	17	3
Rhode Island	-	3	-	1	4	-	6	1	-	-	2	-	1	-	1	-	1	-
South Carolina	-	3	1	-	2	-	-	28	-	4	2	1	1	3	-	-	2	-
South Dakota	2	-	-	-	3	-	1	1	4	-	2	-	1	-	1	-	3	1
Tennessee	-	3	2	-	6	-	-	3	-	37	9	-	1	5	2	-	1	-
Texas	-	2	9	1	11	-	1	1	-	2	227	4	-	3	6	-	6	1
Utah	-	-	-	-	-	-	-	-	-	-	5	21	-	3	2	-	1	-
Vermont	-	-	1	-	-	-	-	1	-	-	-	-	1	2	-	-	1	-
Virginia	-	6	2	1	8	-	3	10	-	15	12	4	-	61	3	-	5	1
Washington	-	4	-	7	5	-	-	-	-	2	7	2	-	2	41	2	2	1
West Virginia	-	5	-	-	5	-	-	-	-	1	1	-	-	8	-	8	1	-
Wisconsin	2	1	3	6	6	-	4	2	-	3	9	-	1	3	9	-	69	-
Wyoming	-	-	1	-	-	-	-	-	-	-	2	-	-	-	1	-	-	3
District of Columbia	-	-	-	-	4	-	-	1	-	-	1	-	-	1	-	-	-	-
Puerto Rico	-	3	-	-	7	12	1	-	-	-	6	-	1	1	-	-	-	-

(1) Only S/E doctorates who last attended a high school in the U.S. (50 states, D.C., and Puerto Rico) and who provided data on State of high school are included in this table. This group represents 56.1 percent of all S/E doctorates.

SOURCE: Survey of Earned Doctorates

Table 13. Postgraduate location of science and engineering doctorates with definite employment or study commitments by major field and citizenship status(1): selected years

	Field of study																	
	Total sci & eng	Physical Sciences			Earth atmos & mar	Math	Comp/ info sci	Agric & Biol Sci			Soc sci	Psych	Engineering(2)				Non-sci & eng(3)	Total all flds
Postgraduation plans		Sub-total	Phys& astr	Chemistry				Sub-total	Agri sci	Biol sci			Sub-total	Chem	Elec	Mech		
YEAR OF DOCTORATE - 1970																		
Doctorates with definite commitments																		
Total	13830	2951	1182	1769	396	916	-	3220	590	2630	2404	1435	2508	343	601	455	8766	22596
U.S. citizens	11641	2545	993	1552	324	793	-	2674	421	2253	1950	1356	1999	267	481	383	8138	19779
Employment	8988	1593	613	980	257	740	-	1487	377	1110	1863	1161	1887	254	455	367	7894	16882
Study	2612	947	378	569	67	51	-	1174	42	1132	77	189	107	13	24	16	169	2781
Other, no report	41	5	2	3	-	2	-	13	2	11	10	6	5	-	2	-	75	116
Non-US citizens, ttl	2174	401	188	213	71	122	-	544	169	375	452	76	508	76	119	72	617	2791
Employment	1540	167	79	88	51	101	-	310	130	180	424	57	430	65	108	69	567	2107
Study	615	230	109	121	20	21	-	228	35	193	25	17	74	11	11	3	37	652
Other, no report	19	4	-	4	-	-	-	6	4	2	3	2	4	-	-	-	13	32
Permanent residents	769	152	60	92	19	38	-	144	25	119	154	30	232	43	56	35	225	994
Employment	557	74	30	44	14	34	-	68	19	49	145	20	202	37	51	34	206	763
Study	206	77	30	47	5	4	-	75	6	69	8	9	28	6	5	1	15	221
Other, no report	6	1	-	1	-	-	-	1	-	1	1	1	2	-	-	-	4	10
Temporary residents	1405	249	128	121	52	84	-	400	144	256	298	46	276	33	63	37	392	1797
Employment	983	93	49	44	37	67	-	242	111	131	279	37	228	28	57	35	361	1344
Study	409	153	79	74	15	17	-	153	29	124	17	8	46	5	6	2	22	431
Other, no report	13	3	-	3	-	-	-	5	4	1	2	1	2	-	-	-	9	22
Unknown citizenship.	15	5	1	4	1	1	-	2	-	2	2	3	1	-	1	-	11	26
Commitments in the United States																		
Total	12026	2626	1024	1602	339	821	-	2732	427	2305	1997	1311	2200	303	541	412	7896	19922
U.S. citizens	10765	2329	894	1435	301	744	-	2468	386	2082	1793	1266	1864	249	454	367	7617	18382
Employment	8448	1511	573	938	246	702	-	1394	348	1046	1726	1091	1778	241	433	354	7463	15911
Study	2302	817	321	496	55	41	-	1067	38	1029	64	174	84	8	20	13	122	2424
Other, no report	15	1	-	1	-	1	-	7	-	7	3	1	2	-	1	-	32	47
Non-US citizens, ttl	1246	292	129	163	37	76	-	262	41	221	202	42	335	54	86	45	269	1515
Employment	758	107	52	55	19	65	-	79	17	62	187	28	273	45	76	43	242	1000
Study	482	183	77	106	18	11	-	183	24	159	14	13	60	9	10	2	23	505
Other, no report	6	2	-	2	-	-	-	-	-	-	1	1	2	-	-	-	4	10
Permanent residents	665	136	51	85	18	32	-	121	17	104	129	26	203	37	51	32	184	849
Employment	475	65	27	38	13	30	-	52	13	39	122	16	177	32	46	31	172	647
Study	186	70	24	46	5	2	-	69	4	65	7	9	24	5	5	1	11	197
Other, no report	4	1	-	1	-	-	-	-	-	-	-	1	2	-	-	-	1	5
Temporary residents	581	156	78	78	19	44	-	141	24	117	73	16	132	17	35	13	85	666
Employment	283	42	25	17	6	35	-	27	4	23	65	12	96	13	30	12	70	353
Study	296	113	53	60	13	9	-	114	20	94	7	4	36	4	5	1	12	308
Other, no report	2	1	-	1	-	-	-	-	-	-	1	-	-	-	-	-	3	5
Unknown citizenship.	15	5	1	4	1	1	-	2	-	2	2	3	1	-	1	-	10	25
Commitments outside the United States																		
Total	1337	248	125	123	51	72	-	395	136	259	306	74	191	25	34	29	527	1864
U.S. citizens	501	152	73	79	17	27	-	138	20	118	78	46	43	8	5	6	210	711
Employment	219	25	16	9	5	17	-	44	16	28	72	34	22	3	3	3	180	399
Study	282	127	57	70	12	10	-	94	4	90	6	12	21	5	2	3	28	310
Other, no report	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
Non-US citizens, ttl	836	96	52	44	34	45	-	257	116	141	228	28	148	17	29	23	317	1153
Employment	713	51	22	29	32	35	-	214	105	109	220	24	137	16	28	22	305	1018
Study	120	44	30	14	2	10	-	43	11	32	8	4	9	1	1	1	6	126
Other, no report	3	1	-	1	-	-	-	-	-	-	-	-	2	-	-	-	6	9
Permanent residents	62	9	5	4	1	5	-	15	6	9	20	1	11	2	1	1	26	88
Employment	48	4	-	4	1	3	-	10	4	6	19	1	10	2	1	1	24	72
Study	14	5	5	-	-	2	-	5	2	3	1	-	1	-	-	-	1	15
Other, no report	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Temporary residents	774	87	47	40	33	40	-	242	110	132	208	27	137	15	28	22	291	1065
Employment	665	47	22	25	31	32	-	204	101	103	201	23	127	14	27	21	281	946
Study	106	39	25	14	2	8	-	38	9	29	7	4	8	1	1	1	5	111
Other, no report	3	1	-	1	-	-	-	-	-	-	-	-	2	-	-	-	5	8
Unknown citizenship.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Commitment location unknown																		
Total	467	77	33	44	6	23	-	93	27	66	101	50	117	15	26	14	343	810
U.S. citizens	375	64	26	38	6	22	-	68	15	53	79	44	92	10	22	10	311	686
Employment	321	57	24	33	6	21	-	49	13	36	65	36	87	10	19	10	251	572
Study	28	3	-	3	-	-	-	13	-	13	7	3	2	-	2	-	19	47
Other, no report	26	4	2	2	-	1	-	6	2	4	7	5	3	-	1	-	41	67
Non-US citizens, ttl	92	13	7	6	-	1	-	25	12	13	22	6	25	5	4	4	31	123
Employment	69	9	5	4	-	1	-	17	8	9	17	5	20	4	4	4	20	89
Study	13	3	2	1	-	-	-	2	-	2	3	-	5	1	-	-	8	21
Other, no report	10	1	-	1	-	-	-	6	4	2	2	1	-	-	-	-	3	13
Permanent residents	42	7	4	3	-	1	-	8	2	6	5	3	18	4	4	2	15	57
Employment	34	5	3	2	-	1	-	6	2	4	4	3	15	3	4	2	10	44
Study	6	2	1	1	-	-	-	1	-	1	-	-	3	1	-	-	3	9
Other, no report	2	-	-	-	-	-	-	1	-	1	1	-	-	-	-	-	2	4
Temporary residents	50	6	3	3	-	-	-	17	10	7	17	3	7	1	-	2	16	66
Employment	35	4	2	2	-	-	-	11	6	5	13	2	5	1	-	2	10	45
Study	7	1	1	-	-	-	-	1	-	1	3	-	2	-	-	-	5	12
Other, no report	8	1	-	1	-	-	-	5	4	1	1	1	-	-	-	-	1	9
Unknown citizenship.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1

See footnotes at end of table.

Table 13. Postgraduate location of science and engineering doctorates with definite employment or study commitments by major field and citizenship status(1): selected years--continued

	Field of study																	
	Total sci & eng	Physical Sciences			Earth atmos & mar	Math	Comp/ info sci	Agric & Biol Sci			Soc sci	Psych	Engineering(2)				Non-sci & eng(3)	Total all flds
Postgraduation plans		Sub-total	Phys& astr	Chemistry				Sub-total	Agri sci	Biol sci			Sub-total	Chem	Elec	Mech		
YEAR OF DOCTORATE - 1980																		
Doctorates with definite commitments																		
Total	12617	1896	717	1179	486	541	160	3443	634	2809	2172	2085	1834	217	356	275	9302	21919
U.S. citizens	10158	1515	554	961	412	416	118	2919	413	2506	1733	2013	1032	113	217	150	8478	18636
Employment	6873	865	276	589	292	371	109	1032	340	692	1609	1641	954	106	203	141	8165	15038
Study	3259	647	277	370	120	44	9	1879	71	1808	119	365	76	7	14	8	270	3529
Other, no report	26	3	1	2	-	1	-	8	2	6	5	7	2	-	-	1	43	69
Non-US citizens, ttl	2453	379	162	217	74	125	42	524	221	303	437	71	801	104	139	125	811	3264
Employment	1734	153	59	94	43	97	38	303	185	118	398	55	647	87	111	101	730	2464
Study	697	225	102	123	30	26	4	211	31	180	36	16	149	17	27	24	64	761
Other, no report	22	1	1	-	1	2	-	10	5	5	3	-	5	-	1	-	17	39
Permanent residents	623	100	36	64	19	40	11	113	21	92	86	31	223	34	43	41	192	815
Employment	455	56	19	37	9	31	11	34	14	20	78	25	211	32	41	38	173	628
Study	168	44	17	27	10	9	-	79	7	72	8	6	12	2	2	3	16	184
Other, no report	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3
Temporary residents	1830	279	126	153	55	85	31	411	200	211	351	40	578	70	96	84	619	2449
Employment	1279	97	40	57	34	66	27	269	171	98	320	30	436	55	70	63	557	1836
Study	529	181	85	96	20	17	4	132	24	108	28	10	137	15	25	21	48	577
Other, no report	22	1	1	-	1	2	-	10	5	5	3	-	5	-	1	-	14	36
Unknown citizenship.	6	2	1	1	-	-	-	-	-	-	2	1	1	-	-	-	13	19
Commitments in the United States																		
Total	10886	1713	632	1081	425	476	145	2938	421	2517	1751	1918	1520	193	312	232	8034	18920
U.S. citizens	9516	1437	522	915	385	399	113	2726	388	2338	1614	1868	974	106	202	143	7777	17293
Employment	6479	840	267	573	275	360	105	973	323	650	1504	1514	908	101	189	135	7530	14009
Study	3014	595	255	340	110	38	8	1745	63	1682	106	348	64	5	13	7	217	3231
Other, no report	23	2	-	2	-	1	-	8	2	6	4	6	2	-	-	1	30	53
Non-US citizens, ttl	1366	274	109	165	40	77	32	212	33	179	137	49	545	87	110	89	251	1617
Employment	804	85	31	54	16	60	28	44	19	25	118	36	417	70	88	67	214	1018
Study	555	188	77	111	24	16	4	166	14	152	18	13	126	17	21	22	36	591
Other, no report	7	1	1	-	-	1	-	2	-	2	1	-	2	-	1	-	1	8
Permanent residents	552	94	33	61	18	34	10	98	15	83	70	30	198	32	38	37	159	711
Employment	402	53	19	34	8	29	10	27	10	17	64	24	187	30	36	34	146	548
Study	150	41	14	27	10	5	-	71	5	66	6	6	11	2	2	3	12	162
Other, no report	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Temporary residents	814	180	76	104	22	43	22	114	18	96	67	19	347	55	72	52	92	906
Employment	402	32	12	20	8	31	18	17	9	8	54	12	230	40	52	33	68	470
Study	405	147	63	84	14	11	4	95	9	86	12	7	115	15	19	19	24	429
Other, no report	7	1	1	-	-	1	-	2	-	2	1	-	2	-	1	-	-	7
Unknown citizenship.	4	2	1	1	-	-	-	-	-	-	-	1	1	-	-	-	6	10
Commitments outside the United States																		
Total	1237	141	70	71	46	46	9	400	184	216	326	47	222	15	20	32	630	1867
U.S. citizens	289	51	20	31	14	5	2	121	14	107	50	27	19	2	4	3	130	419
Employment	106	4	1	3	7	-	1	21	7	14	46	19	8	-	3	2	107	213
Study	183	47	19	28	7	5	1	100	7	93	4	8	11	2	1	1	23	206
Other, no report	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Non-US citizens, ttl	947	90	50	40	32	41	7	279	170	109	275	20	203	13	16	29	495	1442
Employment	821	58	25	33	25	32	7	241	153	88	256	18	184	13	13	28	464	1285
Study	113	32	25	7	6	8	-	32	14	18	17	2	16	-	3	1	21	134
Other, no report	13	-	-	-	1	1	-	6	3	3	2	-	3	-	-	-	10	23
Permanent residents	33	4	3	1	1	4	-	9	5	4	11	-	4	-	-	-	18	51
Employment	22	1	-	1	1	2	-	5	3	2	10	-	3	-	-	-	15	37
Study	11	3	3	-	-	2	-	4	2	2	1	-	1	-	-	-	2	13
Other, no report	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Temporary residents	914	86	47	39	31	37	7	270	165	105	264	20	199	13	16	29	477	1391
Employment	799	57	25	32	24	30	7	236	150	86	246	18	181	13	13	28	449	1248
Study	102	29	22	7	6	6	-	28	12	16	16	2	15	-	3	1	19	121
Other, no report	13	-	-	-	1	1	-	6	3	3	2	-	3	-	-	-	9	22
Unknown citizenship.	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	5	6
Commitment location unknown																		
Total	494	42	15	27	15	19	6	105	29	76	95	120	92	9	24	11	638	1132
U.S. citizens	353	27	12	15	13	12	3	72	11	61	69	118	39	5	11	4	571	924
Employment	288	21	8	13	10	11	3	38	10	28	59	108	38	5	11	4	528	816
Study	62	5	3	2	3	1	-	34	1	33	9	9	1	-	-	-	30	92
Other, no report	3	1	1	-	-	-	-	-	-	-	1	1	-	-	-	-	13	16
Non-US citizens, ttl	140	15	3	12	2	7	3	33	18	15	25	2	53	4	13	7	65	205
Employment	109	10	3	7	2	5	3	18	13	5	24	1	46	4	10	6	52	161
Study	29	5	-	5	-	2	-	13	3	10	1	1	7	-	3	1	7	36
Other, no report	2	-	-	-	-	-	-	2	2	-	-	-	-	-	-	-	6	8
Permanent residents	38	2	-	2	-	2	1	6	1	5	5	1	21	2	5	4	15	53
Employment	31	2	-	2	-	-	1	2	1	1	4	1	21	2	5	4	12	43
Study	7	-	-	-	-	2	-	4	-	4	1	-	-	-	-	-	2	9
Other, no report	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Temporary residents	102	13	3	10	2	5	2	27	17	10	20	1	32	2	8	3	50	152
Employment	78	8	3	5	2	5	2	16	12	4	20	-	25	2	5	2	40	118
Study	22	5	-	5	-	-	-	9	3	6	-	1	7	-	3	1	5	27
Other, no report	2	-	-	-	-	-	-	2	2	-	-	-	-	-	-	-	5	7
Unknown citizenship.	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	2	3

See footnotes at end of table.

Table 13. Postgraduate location of science and engineering doctorates with definite employment or study commitments by major field and citizenship status(1): selected years--continued

	Field of study																	
	Total sci & eng	Physical Sciences			Earth atmos & mar	Math	Comp/ info sci	Agric & Biol Sci			Soc sci	Psych	Engineering(2)				Non-sci & eng(3)	Total all flds
Postgraduation plans		Sub-total	Phys& astr	Chem-istry				Sub-total	Agri sci	Biol sci			Sub-total	Chem	Elec	Mech		
YEAR OF DOCTORATE - 1989																		
Doctorates with definite commitments																		
Total	14034	2316	841	1475	484	535	413	3727	687	3040	1896	2002	2661	426	568	389	8556	22590
U.S. citizens	9969	1603	505	1098	389	289	257	2900	423	2477	1269	1908	1354	277	275	182	7454	17423
Employment	6151	775	201	574	229	227	235	870	297	573	1146	1498	1171	231	244	165	7126	13277
Study	3782	822	302	520	159	61	22	2022	122	1900	113	404	179	45	30	17	277	4059
Other, no report	36	6	2	4	1	1	-	8	4	4	10	6	4	1	1	-	51	87
Non-US citizens, ttl	4046	711	335	376	95	246	156	820	260	560	624	92	1302	148	291	206	1086	5132
Employment	2380	136	59	77	53	162	146	322	165	157	552	63	946	94	242	139	966	3346
Study	1633	571	273	298	40	80	9	487	90	397	66	29	351	54	49	66	103	1736
Other, no report	33	4	3	1	2	4	1	11	5	6	6	-	5	-	-	1	17	50
Permanent residents	655	97	42	55	17	23	35	150	27	123	117	29	187	30	46	28	282	937
Employment	419	28	7	21	9	19	35	43	14	29	108	22	155	25	37	24	257	676
Study	232	69	35	34	8	4	-	107	13	94	7	7	30	5	9	4	21	253
Other, no report	4	-	-	-	-	-	-	-	-	-	2	-	2	-	-	-	4	8
Temporary residents	3391	614	293	321	78	223	121	670	233	437	507	63	1115	118	245	178	804	4195
Employment	1961	108	52	56	44	143	111	279	151	128	444	41	791	69	205	115	709	2670
Study	1401	502	238	264	32	76	9	380	77	303	59	22	321	49	40	62	82	1483
Other, no report	29	4	3	1	2	4	1	11	5	6	4	-	3	-	-	1	13	42
Unknown citizenship.	19	2	1	1	-	-	-	7	4	3	3	2	5	1	2	1	16	35
Commitments in the United States																		
Total	11517	2016	702	1314	389	423	347	3096	450	2646	1409	1785	2052	354	440	298	7230	18747
U.S. citizens	9070	1471	456	1015	340	271	236	2635	374	2261	1152	1728	1237	254	248	167	6757	15827
Employment	5693	740	190	550	220	219	218	786	264	522	1049	1358	1103	223	223	154	6502	12195
Study	3357	726	264	462	120	51	18	1844	109	1735	98	368	132	30	25	13	235	3592
Other, no report	20	5	2	3	-	1	-	5	1	4	5	2	2	1	-	-	20	40
Non-US citizens, ttl	2439	543	245	298	49	152	111	460	76	384	256	56	812	99	192	130	465	2904
Employment	1123	74	32	42	18	95	107	58	16	42	219	35	517	53	152	75	414	1537
Study	1303	468	212	256	31	55	4	397	60	337	36	21	291	46	40	54	46	1349
Other, no report	13	1	1	-	-	2	-	5	-	5	1	-	4	-	-	1	5	18
Permanent residents	521	82	35	47	14	17	30	118	13	105	75	26	159	26	39	22	203	724
Employment	318	23	6	17	8	14	30	25	4	21	68	20	130	21	32	19	190	508
Study	201	59	29	30	6	3	-	93	9	84	7	6	27	5	7	3	11	212
Other, no report	2	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	2	4
Temporary residents	1918	461	210	251	35	135	81	342	63	279	181	30	653	73	153	108	262	2180
Employment	805	51	26	25	10	81	77	33	12	21	151	15	387	32	120	56	224	1029
Study	1102	409	183	226	25	52	4	304	51	253	29	15	264	41	33	51	35	1137
Other, no report	11	1	1	-	-	2	-	5	-	5	1	-	2	-	-	1	3	14
Unknown citizenship.	8	2	1	1	-	-	-	1	-	1	1	1	3	1	-	1	8	16
Commitments outside the United States																		
Total	1590	182	93	89	74	74	37	427	181	246	332	40	424	44	87	66	581	2171
U.S. citizens	351	80	36	44	37	7	7	118	19	99	32	14	56	13	13	8	95	446
Employment	78	5	5	-	3	-	3	18	8	10	25	5	19	1	8	4	82	160
Study	273	75	31	44	34	7	4	100	11	89	7	9	37	12	5	4	12	285
Other, no report	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Non-US citizens, ttl	1233	102	57	45	37	67	30	305	159	146	298	26	368	31	74	58	485	1718
Employment	1028	46	19	27	29	50	28	244	136	108	275	21	335	27	70	52	442	1470
Study	198	56	38	18	6	16	2	58	20	38	23	5	32	4	4	6	40	238
Other, no report	7	-	-	-	2	1	-	3	3	-	-	-	1	-	-	-	3	10
Permanent residents	78	8	5	3	2	3	2	24	11	13	26	-	13	2	2	2	42	120
Employment	63	3	1	2	1	2	2	16	9	7	26	-	13	2	2	2	36	99
Study	15	5	4	1	1	1	-	8	2	6	-	-	-	-	-	-	6	21
Other, no report	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Temporary residents	1155	94	52	42	35	64	28	281	148	133	272	26	355	29	72	56	443	1598
Employment	965	43	18	25	28	48	26	228	127	101	249	21	322	25	68	50	406	1371
Study	183	51	34	17	5	15	2	50	18	32	23	5	32	4	4	6	34	217
Other, no report	7	-	-	-	2	1	-	3	3	-	-	-	1	-	-	-	3	10
Unknown citizenship.	6	-	-	-	-	-	-	4	3	1	2	-	-	-	-	-	1	7
Commitment location unknown																		
Total	927	118	46	72	21	38	29	204	56	148	155	177	185	28	41	25	745	1672
U.S. citizens	548	52	13	39	12	11	14	147	30	117	85	166	61	10	14	7	602	1150
Employment	380	30	6	24	6	8	14	66	25	41	72	135	49	7	13	7	542	922
Study	152	21	7	14	5	3	-	78	2	76	8	27	10	3	-	-	30	182
Other, no report	16	1	-	1	1	-	-	3	3	-	5	4	2	-	1	-	30	46
Non-US citizens, ttl	374	66	33	33	9	27	15	55	25	30	70	10	122	18	25	18	136	510
Employment	229	16	8	8	6	17	11	20	13	7	58	7	94	14	20	12	110	339
Study	132	47	23	24	3	9	3	32	10	22	7	3	28	4	5	6	17	149
Other, no report	13	3	2	1	-	1	1	3	2	1	5	-	-	-	-	-	9	22
Permanent residents	56	7	2	5	1	3	3	8	3	5	16	3	15	2	5	4	37	93
Employment	38	2	-	2	-	3	3	2	1	1	14	2	12	2	3	3	31	69
Study	16	5	2	3	1	-	-	6	2	4	-	1	3	-	2	1	4	20
Other, no report	2	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	2	4
Temporary residents	318	59	31	28	8	24	12	47	22	25	54	7	107	16	20	14	99	417
Employment	191	14	8	6	6	14	8	18	12	6	44	5	82	12	17	9	79	270
Study	116	42	21	21	2	9	3	26	8	18	7	2	25	4	3	5	13	129
Other, no report	11	3	2	1	-	1	1	3	2	1	3	-	-	-	-	-	7	18
Unknown citizenship.	5	-	-	-	-	-	-	2	1	1	-	1	2	-	2	-	7	12

(1) Only doctorates with definite postdoctoral study or employment commitments are reported here. Approximately two-thirds of all S/E doctorates have definite postgraduation plans at receipt of doctorate. See Table 15 for actual numbers by field of study. A "definite commitment" is defined as having a signed contract, formal offer, etc.

(2) Subtotal includes engineering fields not separately shown.

(3) Non-science/engineering doctorates in this table include doctorates whose field of specialization is unclassified.

SOURCE: Survey of Earned Doctorates

Table 14. Employment sector of science and engineering doctorates with definite employment commitments in the United States by major field and sex(1): 1960-89

	Year of doctorate													
Employment sector	Total 1960-1964	Total 1965-1969	Total 1960-1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-1979
TOTAL, MALE AND FEMALE														
Total, science and engineering														
College/university ...	11997	21340	33337	5263	5656	5157	4935	4341	4287	4013	3711	3390	3408	44161
Elem/sec school	221	163	384	44	80	96	115	89	99	112	101	90	70	896
Government	2357	3810	6167	1015	1256	1467	1372	1250	1365	1285	1240	1057	1133	12440
Nonprofit organization	1043	1525	2568	408	318	351	454	454	443	436	437	489	503	4293
Industry	5789	9288	15077	2399	1882	1548	1780	1842	1886	1589	1618	1799	2024	18367
Self-employed	110	110	220	48	48	57	61	71	71	82	87	95	105	725
Other & unknown	593	695	1288	39	41	48	56	43	36	38	32	27	35	395
Total	22110	36931	59041	9216	9281	8724	8773	8090	8187	7555	7226	6947	7278	81277
Total, sciences														
College/university ...	10294	18171	28465	4676	5057	4671	4493	4007	3898	3642	3353	3080	3056	39933
Elem/sec school	218	162	380	44	79	96	113	89	99	111	101	90	70	892
Government	2202	3089	5291	773	910	1076	1047	973	1061	1029	976	867	940	9652
Nonprofit organization	872	1155	2027	308	268	304	386	386	402	402	402	467	468	3793
Industry	3950	5175	9125	1293	980	697	878	949	1065	892	943	1129	1290	10116
Self-employed	101	87	188	35	41	39	54	61	65	71	77	83	96	622
Other & unknown	428	488	916	35	30	43	55	39	35	35	31	21	34	358
Total	18065	28327	46392	7164	7365	6926	7026	6504	6625	6182	5883	5737	5954	65366
Physical sciences														
College/university ...	1864	2864	4728	573	523	445	337	267	214	224	219	181	167	3150
Elem/sec school	15	9	24	5	11	21	15	11	6	13	7	5	3	97
Government	341	645	986	174	158	234	205	174	145	124	136	108	132	1590
Nonprofit organization	188	194	382	63	43	28	23	23	20	19	14	17	17	267
Industry	2651	3392	6043	798	588	300	407	461	515	395	431	514	603	5012
Self-employed	5	7	12	3	4	-	6	2	6	2	5	3	5	36
Other & unknown	140	173	313	5	2	-	3	-	-	1	1	-	3	15
Total	5204	7284	12488	1621	1329	1028	996	938	906	778	813	828	930	10167
Earth, atmos, & marine sciences														
College/university ...	382	654	1036	148	160	161	157	131	103	112	115	95	106	1288
Elem/sec school	1	2	3	-	-	1	1	2	2	-	1	1	1	9
Government	166	233	399	37	66	66	79	77	96	79	94	78	61	733
Nonprofit organization	30	29	59	9	6	5	6	9	9	5	7	7	10	73
Industry	235	311	546	72	63	67	57	67	111	87	88	100	119	831
Self-employed	5	7	12	-	4	3	-	4	1	2	1	2	2	19
Other & unknown	15	19	34	-	-	-	-	1	-	-	2	-	1	4
Total	834	1255	2089	266	299	303	300	291	322	285	308	283	300	2957
Mathematics														
College/university ...	1000	2327	3327	617	639	563	493	444	436	407	340	319	288	4546
Elem/sec school	3	3	6	-	-	5	1	5	6	1	2	3	2	25
Government	58	99	157	30	29	54	48	37	50	47	38	34	38	405
Nonprofit organization	42	59	101	22	7	8	9	7	8	2	4	6	5	78
Industry	203	310	513	99	68	83	82	80	85	64	81	84	73	799
Self-employed	2	2	4	-	1	-	2	3	2	1	3	1	-	13
Other & unknown	20	18	38	-	2	2	-	-	-	1	-	-	1	6
Total	1328	2818	4146	768	746	715	635	576	587	523	468	447	407	5872
Computer/information sciences														
College/university ...	-	-	-	-	-	-	-	-	-	-	8	43	74	125
Elem/sec school	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Government	-	-	-	-	-	-	-	-	-	-	2	3	8	13
Nonprofit organization	-	-	-	-	-	-	-	-	-	-	1	1	2	4
Industry	-	-	-	-	-	-	-	-	-	-	5	23	52	80
Self-employed	-	-	-	-	-	-	-	-	-	-	-	1	2	3
Other & unknown	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Total	-	-	-	-	-	-	-	-	-	-	16	71	139	226

See footnotes at end of table.

Table 14. Employment sector of science and engineering doctorates with definite employment commitments in the United States by major field and sex(1): 1960-89--continued

	Year of doctorate											
Employment sector	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1980-1989	Total 1960-1989
TOTAL, MALE AND FEMALE												
Total, science and engineering												
College/university ...	3228	3183	2993	3038	2767	2850	2753	2653	2858	2985	29308	106806
Elem/sec school	113	121	127	105	102	95	97	99	112	84	1055	2335
Government	1142	1142	910	908	929	885	873	830	853	867	9339	27946
Nonprofit organization	537	513	527	501	528	502	531	522	514	458	5133	11994
Industry	2139	2291	2375	2044	1942	2099	2111	1936	2109	2243	21289	54733
Self-employed	101	146	157	175	171	145	175	156	154	143	1523	2468
Other & unknown	25	34	31	26	29	37	43	54	46	40	365	2048
Total	7285	7430	7120	6797	6468	6613	6583	6250	6646	6820	68012	208330
Total, sciences												
College/university ...	2876	2822	2659	2615	2380	2448	2320	2221	2346	2493	25180	93578
Elem/sec school	113	121	127	105	102	95	97	99	112	84	1055	2327
Government	935	988	771	781	756	731	732	660	669	677	7700	22643
Nonprofit organization	509	487	498	484	510	480	507	501	500	429	4905	10725
Industry	1410	1552	1620	1387	1314	1372	1388	1222	1272	1345	13882	33123
Self-employed	91	140	143	170	162	137	170	149	140	131	1433	2243
Other & unknown	25	32	29	26	25	35	41	52	45	39	349	1623
Total	5959	6142	5847	5568	5249	5298	5255	4904	5084	5198	54504	166262
Physical sciences												
College/university ...	144	129	161	174	149	169	141	149	150	147	1513	9391
Elem/sec school	6	4	2	1	2	-	3	1	1	-	20	141
Government	110	112	89	96	112	94	78	78	76	66	911	3487
Nonprofit organization	13	15	9	15	10	16	21	23	16	12	150	799
Industry	651	756	770	636	581	646	637	528	544	587	6336	17391
Self-employed	2	3	1	1	-	4	2	4	-	-	17	65
Other & unknown	-	-	-	1	-	1	-	1	-	2	5	333
Total	926	1019	1032	924	854	930	882	784	787	814	8952	31607
Earth, atmos, & marine sciences												
College/university ...	101	89	98	100	99	98	80	94	84	78	921	3245
Elem/sec school	-	1	2	-	-	-	1	1	-	1	6	18
Government	74	70	53	56	51	46	44	58	64	68	584	1716
Nonprofit organization	6	-	10	8	4	2	3	4	2	5	44	176
Industry	110	117	153	99	92	62	61	47	59	83	883	2260
Self-employed	-	3	1	1	4	2	3	6	6	3	29	60
Other & unknown	-	-	-	-	-	-	-	-	-	-	-	38
Total	291	280	317	264	250	210	192	210	215	238	2467	7513
Mathematics												
College/university ...	303	275	264	251	282	249	235	196	229	259	2543	10416
Elem/sec school	4	1	-	4	1	-	-	1	1	-	12	43
Government	24	25	30	20	25	20	15	11	7	16	193	755
Nonprofit organization	4	3	3	4	4	5	3	5	5	4	40	219
Industry	85	86	57	43	43	51	53	47	39	35	539	1851
Self-employed	-	1	-	1	-	1	1	-	-	-	4	21
Other & unknown	-	-	-	2	-	-	-	-	-	-	2	46
Total	420	391	354	325	355	326	307	260	281	314	3333	13351
Computer/information sciences												
College/university ...	63	79	68	90	91	90	101	161	168	211	1122	1247
Elem/sec school	-	-	-	-	-	-	-	1	-	-	1	1
Government	9	8	8	6	7	7	10	5	18	15	93	106
Nonprofit organization	4	1	2	-	5	3	5	2	4	5	31	35
Industry	55	61	57	71	77	63	76	64	95	94	713	793
Self-employed	2	1	-	1	1	1	5	1	-	-	12	15
Other & unknown	-	-	-	-	-	2	-	1	-	-	3	4
Total	133	150	135	168	181	166	197	235	285	325	1975	2201

See footnotes at end of table.

Table 14. Employment sector of science and engineering doctorates with definite employment commitments in the United States by major field and sex(1): 1960-89--continued

	Year of doctorate													
Employment sector	Total 1960-1964	Total 1965-1969	Total 1960-1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-1979
TOTAL, MALE AND FEMALE														
Agricultural & biological sciences														
College/university	2836	4364	7200	1005	1032	881	901	770	707	658	596	590	606	7746
Elem/sec school	24	8	32	5	5	12	11	10	8	5	7	3	4	70
Government	650	922	1572	203	225	213	213	186	193	191	150	160	144	1878
Nonprofit organization	153	236	389	49	38	65	62	57	58	52	33	38	49	501
Industry	529	741	1270	198	161	143	195	198	203	187	179	205	202	1871
Self-employed	14	7	21	9	4	6	16	13	10	8	10	12	7	95
Other & unknown	98	118	216	4	2	6	4	2	2	2	1	-	4	27
Total	4304	6396	10700	1473	1467	1326	1402	1236	1181	1103	976	1008	1016	12188
Social sciences														
College/university	2864	5455	8319	1648	1927	1892	1852	1671	1686	1562	1429	1276	1199	16142
Elem/sec school	34	8	42	4	5	8	12	5	10	4	6	8	8	70
Government	311	430	741	116	184	184	189	199	232	229	194	193	198	1918
Nonprofit organization	171	226	397	59	63	68	98	79	77	77	70	82	93	766
Industry	141	221	362	65	58	68	73	78	94	87	88	98	111	820
Self-employed	22	18	40	8	10	12	9	7	14	16	15	13	17	121
Other & unknown	57	74	131	15	14	31	29	27	21	27	24	14	18	220
Total	3600	6432	10032	1915	2261	2263	2262	2066	2134	2002	1826	1684	1644	20057
Psychology														
College/university	1348	2507	3855	685	776	729	753	724	752	679	646	576	616	6936
Elem/sec school	141	132	273	30	58	49	73	56	67	88	78	70	52	621
Government	676	760	1436	213	248	325	313	300	345	359	362	291	359	3115
Nonprofit organization	288	411	699	106	111	130	188	211	230	247	273	316	292	2104
Industry	191	200	391	61	42	36	64	65	57	72	71	105	130	703
Self-employed	53	46	99	15	18	18	21	32	32	42	43	51	63	335
Other & unknown	98	86	184	11	10	4	19	9	12	4	3	7	6	85
Total	2795	4142	6937	1121	1263	1291	1431	1397	1495	1491	1476	1416	1518	13899
Engineering(2)														
College/university	1703	3169	4872	587	599	486	442	334	389	371	358	310	352	4228
Elem/sec school	3	1	4	-	1	-	2	-	-	1	-	-	-	4
Government	155	721	876	242	346	391	325	277	304	256	264	190	193	2788
Nonprofit organization	171	370	541	100	50	47	68	68	41	34	35	22	35	500
Industry	1839	4113	5952	1106	902	851	902	893	821	697	675	670	734	8251
Self-employed	9	23	32	13	7	18	7	10	6	11	10	12	9	103
Other & unknown	165	207	372	4	11	5	1	4	1	3	1	6	1	37
Total	4045	8604	12649	2052	1916	1798	1747	1586	1562	1373	1343	1210	1324	15911
Total, non-science and engineering(3)														
College/university	11277	21841	33118	6274	6650	6760	6691	6073	5847	5748	5185	4870	4725	58823
Elem/sec school	2077	3193	5270	702	892	1158	1238	1172	1295	1408	1247	1178	1165	11455
Government	519	912	1431	358	476	490	602	675	712	712	708	704	740	6177
Nonprofit organization	535	799	1334	188	270	306	358	356	447	465	467	479	478	3814
Industry	230	416	646	106	135	107	150	190	194	173	196	233	270	1754
Self-employed	61	68	129	32	30	36	33	44	59	65	85	85	93	562
Other & unknown	123	165	288	55	25	24	36	24	26	21	14	14	21	260
Total	14822	27394	42216	7715	8478	8881	9108	8534	8580	8592	7902	7563	7492	82845
Total, all fields														
College/university	23274	43181	66455	11537	12306	11917	11626	10414	10134	9761	8896	8260	8133	102984
Elem/sec school	2298	3356	5654	746	972	1254	1353	1261	1394	1520	1348	1268	1235	12351
Government	2876	4722	7598	1373	1732	1957	1974	1925	2077	1997	1948	1761	1873	18617
Nonprofit organization	1578	2324	3902	596	588	657	812	810	890	901	904	968	981	8107
Industry	6019	9704	15723	2505	2017	1655	1930	2032	2080	1762	1814	2032	2294	20121
Self-employed	171	178	349	80	78	93	94	115	130	147	172	180	198	1287
Other & unknown	716	860	1576	94	66	72	92	67	62	59	46	41	56	655
Total	36932	64325	101257	16931	17759	17605	17881	16624	16767	16147	15128	14510	14770	164122

See footnotes at end of table.

Table 14. Employment sector of science and engineering doctorates with definite employment commitments in the United States by major field and sex(1): 1960-89--continued

	Year of doctorate											
Employment sector	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1980-1989	Total 1960-1989
TOTAL, MALE AND FEMALE												
Agricultural & biological sciences												
College/university ...	562	550	530	470	395	475	391	356	364	395	4488	19434
Elem/sec school	2	7	4	8	2	7	4	2	6	7	49	151
Government	166	152	125	148	153	136	142	139	142	127	1430	4880
Nonprofit organization	44	39	53	34	46	35	40	39	42	44	416	1306
Industry	234	251	282	253	246	267	234	224	203	257	2451	5592
Self-employed	8	18	14	16	10	11	17	6	14	13	127	243
Other & unknown	1	2	3	3	1	2	-	-	1	1	14	257
Total	1017	1019	1011	932	853	933	828	766	772	844	8975	31863
Social sciences												
College/university ...	1135	1089	1024	1022	902	865	918	854	916	914	9639	34100
Elem/sec school	7	8	12	9	4	13	9	9	15	10	96	208
Government	220	243	172	168	158	171	177	142	129	158	1738	4397
Nonprofit organization	106	99	73	74	93	70	85	82	90	70	842	2005
Industry	122	119	134	113	99	107	117	108	112	77	1108	2290
Self-employed	14	20	30	31	24	21	24	16	24	14	218	379
Other & unknown	18	26	22	14	21	29	28	32	36	26	252	603
Total	1622	1604	1467	1431	1301	1276	1358	1243	1322	1269	13893	43982
Psychology												
College/university ...	568	611	514	508	462	502	454	411	435	489	4954	15745
Elem/sec school	94	100	107	83	93	75	80	84	89	66	871	1765
Government	332	378	294	287	250	257	266	227	233	227	2751	7302
Nonprofit organization	332	330	348	349	348	349	350	346	341	289	3382	6185
Industry	153	162	167	172	176	176	210	204	220	212	1852	2946
Self-employed	65	94	97	119	123	97	118	116	96	101	1026	1460
Other & unknown	6	4	4	6	3	1	13	18	8	10	73	342
Total	1550	1679	1531	1524	1455	1457	1491	1406	1422	1394	14909	35745
Engineering(2)												
College/university ...	352	361	334	423	387	402	433	432	512	492	4128	13228
Elem/sec school	-	-	-	-	-	-	-	-	-	-	-	8
Government	207	154	139	127	173	154	141	170	184	190	1639	5303
Nonprofit organization	28	26	29	17	18	22	24	21	14	29	228	1269
Industry	729	739	755	657	628	727	723	714	837	898	7407	21610
Self-employed	10	6	14	5	9	8	5	7	14	12	90	225
Other & unknown	-	2	2	-	4	2	2	2	1	1	16	425
Total	1326	1288	1273	1229	1219	1315	1328	1346	1562	1622	13508	42068
Total, non-science and engineering(3)												
College/university ...	4682	4542	4285	4151	4003	3940	3993	4077	4122	4294	42089	134030
Elem/sec school	1366	1353	1284	1329	1314	1248	1256	1221	1257	1171	12799	29524
Government	721	735	668	592	630	636	603	511	497	522	6115	13723
Nonprofit organization	533	495	534	500	494	523	484	463	494	489	5009	10157
Industry	315	325	380	354	305	317	334	284	294	310	3218	5618
Self-employed	119	139	170	157	139	131	154	127	141	130	1407	2098
Other & unknown	14	18	23	13	10	10	9	23	14	8	142	690
Total	7750	7607	7344	7096	6895	6805	6833	6706	6819	6924	70779	195840
Total, all fields												
College/university ...	7910	7725	7278	7189	6770	6790	6746	6730	6980	7279	71397	240836
Elem/sec school	1479	1474	1411	1434	1416	1343	1353	1320	1369	1255	13854	31859
Government	1863	1877	1578	1500	1559	1521	1476	1341	1350	1389	15454	41669
Nonprofit organization	1070	1008	1061	1001	1022	1025	1015	985	1008	947	10142	22151
Industry	2454	2616	2755	2398	2247	2416	2445	2220	2403	2553	24507	60351
Self-employed	220	285	327	332	310	276	329	283	295	273	2930	4566
Other & unknown	39	52	54	39	39	47	52	77	60	48	507	2738
Total	15035	15037	14464	13893	13363	13418	13416	12956	13465	13744	138791	404170

See footnotes at end of table.

Table 14. Employment sector of science and engineering doctorates with definite employment commitments in the United States by major field and sex(1): 1960-89--continued

	Year of doctorate													
Employment sector	Total 1960-1964	Total 1965-1969	Total 1960-1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-1979
MALE														
Total, science and engineering														
College/university ...	11095	19546	30641	4795	5067	4537	4255	3583	3492	3234	2949	2636	2624	37172
Elem/sec school	180	114	294	35	62	68	91	69	65	76	65	49	40	620
Government	2195	3569	5764	951	1173	1383	1247	1139	1239	1138	1095	924	913	11202
Nonprofit organization	942	1320	2262	367	276	290	375	378	347	339	310	330	333	3345
Industry	5712	9166	14878	2369	1856	1520	1715	1790	1807	1493	1518	1647	1853	17568
Self-employed	89	91	180	39	44	49	55	61	57	60	71	78	76	590
Other & unknown	572	680	1252	29	37	40	46	39	31	34	25	21	28	330
Total	20785	34486	55271	8585	8515	7887	7784	7059	7038	6374	6033	5685	5867	70827
Total, sciences														
College/university ...	9398	16386	25784	4211	4469	4056	3820	3257	3118	2872	2603	2339	2283	33028
Elem/sec school	177	113	290	35	61	68	89	69	65	75	65	49	40	616
Government	2042	2849	4891	710	827	994	925	863	939	885	837	739	726	8445
Nonprofit organization	772	951	1723	267	226	243	307	310	307	305	276	308	300	2849
Industry	3878	5063	8941	1264	957	671	820	901	997	806	859	989	1137	9401
Self-employed	80	68	148	26	37	31	49	51	51	49	61	66	67	488
Other & unknown	407	473	880	25	26	35	45	35	30	31	24	15	27	293
Total	16754	25903	42657	6538	6603	6098	6055	5486	5507	5023	4725	4505	4580	55120
Physical sciences														
College/university ...	1782	2692	4474	533	492	405	309	248	188	198	202	164	143	2882
Elem/sec school	15	8	23	5	10	19	13	10	5	13	6	4	2	87
Government	331	632	963	169	155	228	201	170	139	118	132	97	121	1530
Nonprofit organization	187	184	371	60	43	27	23	23	19	15	12	13	15	250
Industry	2605	3332	5937	786	582	292	330	439	484	368	402	469	553	4765
Self-employed	5	6	11	3	4	-	5	2	6	2	5	3	5	35
Other & unknown	140	171	311	4	2	-	3	-	-	1	1	-	3	14
Total	5065	7025	12090	1560	1288	971	944	892	841	715	760	750	842	9563
Earth, atmos, & marine sciences														
College/university ...	377	638	1015	142	157	158	150	122	98	104	108	89	96	1224
Elem/sec school	-	2	2	-	-	1	1	2	2	-	1	1	1	9
Government	166	226	392	36	63	66	78	77	94	72	91	72	59	708
Nonprofit organization	30	29	59	7	6	5	6	7	9	4	5	7	9	65
Industry	235	310	545	72	63	67	54	65	106	79	85	86	113	790
Self-employed	5	7	12	-	4	3	-	4	1	2	1	2	2	19
Other & unknown	15	19	34	-	-	-	-	1	-	-	2	-	1	4
Total	828	1231	2059	257	293	300	289	278	310	261	293	257	281	2819
Mathematics														
College/university ...	931	2185	3116	581	600	525	442	397	386	351	295	265	236	4078
Elem/sec school	2	3	5	-	-	4	1	5	5	-	2	3	2	22
Government	58	98	156	30	28	53	44	35	46	45	36	31	32	380
Nonprofit organization	41	56	97	22	7	7	9	6	7	2	4	4	3	71
Industry	198	305	503	99	66	81	75	79	80	61	73	71	61	746
Self-employed	2	2	4	-	-	-	2	3	2	1	3	1	-	12
Other & unknown	20	17	37	-	2	2	-	-	-	1	-	-	1	6
Total	1252	2666	3918	732	703	672	573	525	526	461	413	375	335	5315
Computer/information sciences														
College/university ...	-	-	-	-	-	-	-	-	-	-	7	41	61	109
Elem/sec school	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Government	-	-	-	-	-	-	-	-	-	-	2	3	6	11
Nonprofit organization	-	-	-	-	-	-	-	-	-	-	-	1	1	2
Industry	-	-	-	-	-	-	-	-	-	-	5	22	46	73
Self-employed	-	-	-	-	-	-	-	-	-	-	-	1	2	3
Other & unknown	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Total	-	-	-	-	-	-	-	-	-	-	14	68	117	199

See footnotes at end of table.

Table 14. Employment sector of science and engineering doctorates with definite employment commitments in the United States by major field and sex(1): 1960-89--continued

Employment sector	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1980-1989	Total 1960-1989
	Year of doctorate											
MALE												
Total, science and engineering												
College/university ...	2434	2414	2232	2242	2026	2067	1919	1910	2037	2010	21291	89104
Elem/sec school	55	60	73	53	46	46	41	43	45	35	497	1411
Government	951	892	703	700	731	626	652	632	660	620	7167	24133
Nonprofit organization	370	320	324	289	318	285	325	262	264	257	3014	8621
Industry	1893	2024	2069	1781	1656	1811	1757	1594	1759	1819	18163	50609
Self-employed	71	95	112	97	80	91	93	79	84	76	878	1648
Other & unknown	16	24	24	20	23	29	30	33	32	29	260	1842
Total	5790	5829	5537	5182	4880	4955	4817	4553	4881	4846	51270	177368
Total, sciences												
College/university ...	2099	2074	1922	1838	1659	1693	1518	1501	1564	1572	17440	76252
Elem/sec school	55	60	73	53	46	46	41	43	45	35	497	1403
Government	750	743	574	580	566	487	522	472	484	458	5636	18972
Nonprofit organization	343	295	295	275	300	264	303	243	253	230	2801	7373
Industry	1193	1312	1340	1151	1060	1127	1087	929	971	998	11168	29510
Self-employed	61	89	99	93	72	83	88	72	71	64	792	1428
Other & unknown	16	23	22	20	19	27	28	31	31	28	245	1418
Total	4517	4596	4325	4010	3722	3727	3587	3291	3419	3385	38579	136356
Physical sciences												
College/university ...	117	113	138	145	130	131	115	118	123	119	1249	8605
Elem/sec school	6	4	2	1	2	-	1	-	1	-	17	127
Government	102	97	81	87	96	82	62	69	72	54	802	3295
Nonprofit organization	12	11	7	14	10	13	19	18	12	9	125	746
Industry	573	666	675	560	500	551	545	441	461	459	5431	16133
Self-employed	1	2	1	1	-	4	1	4	-	-	14	60
Other & unknown	-	-	-	1	-	1	-	-	-	-	2	327
Total	811	893	904	809	738	782	743	650	669	641	7640	29293
Earth, atmos, & marine sciences												
College/university ...	90	83	86	79	80	80	57	73	59	57	744	2983
Elem/sec school	-	1	2	-	-	-	-	-	-	1	4	15
Government	69	63	48	53	40	34	37	46	54	55	499	1599
Nonprofit organization	6	-	10	6	4	2	3	3	2	5	41	165
Industry	101	105	131	87	82	53	56	39	52	73	779	2114
Self-employed	-	3	1	1	2	1	3	4	5	3	23	54
Other & unknown	-	-	-	-	-	-	-	-	-	-	-	38
Total	266	255	278	226	208	170	156	165	172	194	2090	6968
Mathematics												
College/university ...	256	229	227	205	224	207	196	157	190	191	2082	9276
Elem/sec school	2	1	-	3	1	-	-	-	1	-	8	35
Government	23	22	25	14	24	17	13	10	5	15	168	704
Nonprofit organization	4	2	3	3	2	5	3	3	4	2	31	199
Industry	77	73	45	35	37	43	41	39	29	29	448	1697
Self-employed	-	1	-	-	-	1	1	-	-	-	3	19
Other & unknown	-	-	-	2	-	-	-	-	-	-	2	45
Total	362	328	300	262	288	273	254	209	229	237	2742	11975
Computer/information sciences												
College/university ...	54	70	61	77	77	79	84	133	140	170	945	1054
Elem/sec school	-	-	-	-	-	-	-	1	-	-	1	1
Government	6	8	7	5	6	7	10	5	15	15	84	95
Nonprofit organization	4	1	2	-	2	2	3	1	4	5	24	26
Industry	51	54	52	67	73	62	71	55	88	72	645	718
Self-employed	2	1	-	-	1	1	4	1	-	-	10	13
Other & unknown	-	-	-	-	-	1	-	1	-	-	2	3
Total	117	134	122	149	159	152	172	197	247	262	1711	1910

See footnotes at end of table.

Table 14. Employment sector of science and engineering doctorates with definite employment commitments in the United States by major field and sex(1): 1960-89--continued

				Year of doctorate										
Employment sector	Total 1960-1964	Total 1965-1969	Total 1960-1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-1979
MALE														
Agricultural & biological sciences														
College/university ...	2557	3894	6451	904	898	782	757	649	578	540	492	475	491	6566
Elem/sec school	22	7	29	4	3	8	10	6	6	4	5	2	3	51
Government	619	879	1498	197	218	205	200	173	180	185	134	143	123	1758
Nonprofit organization	131	191	322	42	35	50	53	50	49	43	26	26	41	415
Industry	517	721	1238	191	153	141	183	189	195	174	158	189	177	1750
Self-employed	14	6	20	7	4	6	16	12	8	8	9	11	7	88
Other & unknown	95	115	210	3	2	5	4	2	2	2	-	-	3	23
Total	3955	5813	9768	1348	1313	1197	1223	1081	1018	956	824	846	845	10651
Social sciences														
College/university ...	2647	4915	7562	1488	1697	1647	1593	1351	1346	1225	1111	946	889	13293
Elem/sec school	26	5	31	4	5	6	11	5	9	4	6	6	6	62
Government	285	400	685	110	168	170	172	179	215	198	170	172	150	1704
Nonprofit organization	153	203	356	54	50	60	80	66	63	60	51	63	62	609
Industry	138	209	347	62	55	62	66	73	86	75	81	76	95	731
Self-employed	17	16	33	8	10	9	9	6	10	13	13	12	12	102
Other & unknown	52	73	125	12	14	28	27	26	20	23	19	11	13	193
Total	3318	5821	9139	1738	1999	1982	1958	1706	1749	1598	1451	1286	1227	16694
Psychology														
College/university ...	1104	2062	3166	563	625	539	569	490	522	454	388	359	367	4876
Elem/sec school	112	88	200	22	43	30	53	41	38	54	45	33	26	385
Government	583	614	1197	168	195	272	230	229	265	267	272	221	235	2354
Nonprofit organization	230	288	518	82	85	94	136	158	160	181	178	194	169	1437
Industry	185	186	371	54	38	28	52	56	46	49	55	76	92	546
Self-employed	37	31	68	8	15	13	17	24	24	23	30	36	39	229
Other & unknown	85	78	163	6	6	-	11	6	8	4	2	4	5	52
Total	2336	3347	5683	903	1007	976	1068	1004	1063	1032	970	923	933	9879
Engineering(2)														
College/university ...	1697	3160	4857	584	598	481	435	326	374	362	346	297	341	4144
Elem/sec school	3	1	4	-	1	-	2	-	-	1	-	-	-	4
Government	153	720	873	241	346	389	322	276	300	253	258	185	187	2757
Nonprofit organization	170	369	539	100	50	47	68	68	40	34	34	22	33	496
Industry	1834	4103	5937	1105	899	849	895	889	810	687	659	658	716	8167
Self-employed	9	23	32	13	7	18	6	10	6	11	10	12	9	102
Other & unknown	165	207	372	4	11	5	1	4	1	3	1	6	1	37
Total	4031	8583	12614	2047	1912	1789	1729	1573	1531	1351	1308	1180	1287	15707
Total, non-science and engineering(3)														
College/university ...	9429	18029	27458	5091	5397	5318	5151	4544	4135	3901	3407	3092	2865	42901
Elem/sec school	1784	2741	4525	605	744	967	1029	926	999	1061	897	823	768	8819
Government	457	778	1235	315	408	421	499	568	536	554	529	494	499	4823
Nonprofit organization	463	673	1136	148	220	254	294	288	349	345	360	360	335	2953
Industry	220	392	612	96	126	93	131	157	152	146	153	178	190	1422
Self-employed	46	53	99	23	22	31	21	36	38	46	65	52	62	396
Other & unknown	110	143	253	47	19	18	28	20	21	11	9	11	11	195
Total	12509	22809	35318	6325	6936	7102	7153	6539	6230	6064	5420	5010	4730	61509
Total, all fields														
College/university ...	20524	37575	58099	9886	10464	9855	9406	8127	7627	7135	6356	5728	5489	80073
Elem/sec school	1964	2855	4819	640	806	1035	1120	995	1064	1137	962	872	808	9439
Government	2652	4347	6999	1266	1581	1804	1746	1707	1775	1692	1624	1418	1412	16025
Nonprofit organization	1405	1993	3398	515	496	544	669	666	696	684	670	690	668	6298
Industry	5932	9558	15490	2465	1982	1613	1846	1947	1959	1639	1671	1825	2043	18990
Self-employed	135	144	279	62	66	80	76	97	95	106	136	130	138	986
Other & unknown	682	823	1505	76	56	58	74	59	52	45	34	32	39	525
Total	33294	57295	90589	14910	15451	14989	14937	13598	13268	12438	11453	10695	10597	132336

See footnotes at end of table.

Table 14. Employment sector of science and engineering doctorates with definite employment commitments in the United States by major field and sex(1): 1960-89--continued

	Year of doctorate											
Employment sector	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1980-1989	Total 1960-1989
MALE												
Agricultural & biological sciences												
College/university ...	436	426	415	348	303	351	266	235	253	250	3283	16300
Elem/sec school	2	6	4	6	1	4	2	2	4	3	34	114
Government	139	118	99	107	125	99	113	120	106	92	1118	4374
Nonprofit organization	34	30	34	25	42	24	34	25	33	32	313	1050
Industry	194	213	226	210	196	221	178	176	150	194	1958	4946
Self-employed	8	15	10	13	10	8	14	3	8	9	98	206
Other & unknown	1	2	3	3	1	2	-	-	1	1	14	247
Total	814	810	791	712	678	709	607	561	555	581	6818	27237
Social sciences												
College/university ...	842	806	725	721	630	599	592	584	607	572	6678	27533
Elem/sec school	2	5	7	3	1	11	3	4	5	7	48	141
Government	183	196	131	135	120	121	130	103	91	101	1311	3700
Nonprofit organization	78	63	44	47	58	38	48	35	43	38	492	1457
Industry	95	92	109	81	71	83	84	75	81	61	832	1910
Self-employed	12	14	26	23	11	13	14	7	12	6	138	273
Other & unknown	12	19	16	11	16	23	19	24	27	22	189	507
Total	1224	1195	1058	1021	907	888	890	832	866	807	9688	35521
Psychology												
College/university ...	304	347	270	263	215	246	208	201	192	213	2459	10501
Elem/sec school	43	43	58	40	41	31	35	36	34	24	385	970
Government	228	239	183	179	155	127	157	119	141	126	1654	5205
Nonprofit organization	205	188	195	180	182	180	193	158	155	139	1775	3730
Industry	102	109	102	111	101	114	112	104	110	110	1075	1992
Self-employed	38	53	61	55	48	55	51	53	46	46	506	803
Other & unknown	3	2	3	3	2	-	9	6	3	5	36	251
Total	923	981	872	831	744	753	765	677	681	663	7890	23452
Engineering(2)												
College/university ...	335	340	310	404	367	374	401	409	473	438	3851	12852
Elem/sec school	-	-	-	-	-	-	-	-	-	-	-	8
Government	201	149	129	120	165	139	130	160	176	162	1531	5161
Nonprofit organization	27	25	29	14	18	21	22	19	11	27	213	1248
Industry	700	712	729	630	596	684	670	665	788	821	6995	21099
Self-employed	10	6	13	4	8	8	5	7	13	12	86	220
Other & unknown	-	1	2	-	4	2	2	2	1	1	15	424
Total	1273	1233	1212	1172	1158	1228	1230	1262	1462	1461	12691	41012
Total, non-science and engineering(3)												
College/university ...	2704	2519	2310	2221	2054	2049	1990	2011	2030	2031	21919	92278
Elem/sec school	842	804	767	722	755	691	592	600	623	547	6943	20287
Government	491	452	388	363	358	347	308	297	258	250	3512	9570
Nonprofit organization	387	337	332	301	305	321	302	260	303	276	3124	7213
Industry	203	235	259	244	191	204	205	178	184	199	2102	4136
Self-employed	73	73	86	76	65	54	74	59	54	55	669	1164
Other & unknown	7	14	12	4	5	5	4	14	6	3	74	522
Total	4707	4434	4154	3931	3733	3671	3475	3419	3458	3361	38343	135170
Total, all fields												
College/university ...	5138	4933	4542	4463	4080	4116	3909	3921	4067	4041	43210	181382
Elem/sec school	897	864	840	775	801	737	633	643	668	582	7440	21698
Government	1442	1344	1091	1063	1089	973	960	929	918	870	10679	33703
Nonprofit organization	757	657	656	590	623	606	627	522	567	533	6138	15834
Industry	2096	2259	2328	2025	1847	2015	1962	1772	1943	2018	20265	54745
Self-employed	144	168	198	173	145	145	167	138	138	131	1547	2812
Other & unknown	23	38	36	24	28	34	34	47	38	32	334	2364
Total	10497	10263	9691	9113	8613	8626	8292	7972	8339	8207	89613	312538

See footnotes at end of table.

Table 14. Employment sector of science and engineering doctorates with definite employment commitments in the United States by major field and sex(1): 1960-89--continued

	Year of doctorate													
Employment sector	Total 1960-1964	Total 1965-1969	Total 1960-1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-1979
FEMALE														
Total, science and engineering														
College/university ...	902	1794	2696	468	589	620	680	758	795	779	762	754	784	6989
Elem/sec school	41	49	90	9	18	28	24	20	34	36	36	41	30	276
Government	162	241	403	64	83	84	125	111	126	147	145	133	220	1238
Nonprofit organization	101	205	306	41	42	61	79	76	96	97	127	159	170	948
Industry	77	122	199	30	26	28	65	52	79	96	100	152	171	799
Self-employed	21	19	40	9	4	8	6	10	14	22	16	17	29	135
Other & unknown	21	15	36	10	4	8	10	4	5	4	7	6	7	65
Total	1325	2445	3770	631	766	837	989	1031	1149	1181	1193	1262	1411	10450
Total, sciences														
College/university ...	896	1785	2681	465	588	615	673	750	780	770	750	741	773	6905
Elem/sec school	41	49	90	9	18	28	24	20	34	36	36	41	30	276
Government	160	240	400	63	83	82	122	110	122	144	139	128	214	1207
Nonprofit organization	100	204	304	41	42	61	79	76	95	97	126	159	168	944
Industry	72	112	184	29	23	26	58	48	68	86	84	140	153	715
Self-employed	21	19	40	9	4	8	5	10	14	22	16	17	29	134
Other & unknown	21	15	36	10	4	8	10	4	5	4	7	6	7	65
Total	1311	2424	3735	626	762	828	971	1018	1118	1159	1158	1232	1374	10246
Physical sciences														
College/university ...	82	172	254	40	31	40	28	19	26	26	17	17	24	268
Elem/sec school	-	1	1	-	1	2	2	1	1	-	1	1	1	10
Government	10	13	23	5	3	6	4	4	6	6	4	11	11	60
Nonprofit organization	1	10	11	3	-	1	-	-	1	4	2	4	2	17
Industry	46	60	106	12	6	8	17	22	31	27	29	45	50	247
Self-employed	-	1	1	-	-	-	1	-	-	-	-	-	-	1
Other & unknown	-	2	2	1	-	-	-	-	-	-	-	-	-	1
Total	139	259	398	61	41	57	52	46	65	63	53	78	88	604
Earth, atmos, & marine sciences														
College/university ...	5	16	21	6	3	3	7	9	5	8	7	6	10	64
Elem/sec school	1	-	1	-	-	-	-	-	-	-	-	-	-	-
Government	-	7	7	1	3	-	1	-	2	7	3	6	2	25
Nonprofit organization	-	-	-	2	-	-	-	2	-	1	2	-	1	8
Industry	-	1	1	-	-	-	3	2	5	8	3	14	6	41
Self-employed	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other & unknown	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	6	24	30	9	6	3	11	13	12	24	15	26	19	138
Mathematics														
College/university ...	69	142	211	36	39	38	51	47	50	56	45	54	52	468
Elem/sec school	1	-	1	-	-	1	-	-	1	1	-	-	-	3
Government	-	1	1	-	1	1	4	2	4	2	2	3	6	25
Nonprofit organization	1	3	4	-	-	1	-	1	1	-	-	2	2	7
Industry	5	5	10	-	2	2	7	1	5	3	8	13	12	53
Self-employed	-	-	-	-	1	-	-	-	-	-	-	-	-	1
Other & unknown	-	1	1	-	-	-	-	-	-	-	-	-	-	-
Total	76	152	228	36	43	43	62	51	61	62	55	72	72	557
Computer/information sciences														
College/university ...	-	-	-	-	-	-	-	-	-	-	1	2	13	16
Elem/sec school	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Government	-	-	-	-	-	-	-	-	-	-	-	-	2	2
Nonprofit organization	-	-	-	-	-	-	-	-	-	-	1	-	1	2
Industry	-	-	-	-	-	-	-	-	-	-	-	1	6	7
Self-employed	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other & unknown	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-	-	-	-	2	3	22	27

See footnotes at end of table.

Table 14. Employment sector of science and engineering doctorates with definite employment commitments in the United States by major field and sex(1): 1960-89--continued

Employment sector	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1980-1989	Total 1960-1989
	Year of doctorate											
FEMALE												
Total, science and engineering												
College/university ...	794	769	761	796	741	783	834	743	821	975	8017	17702
Elem/sec school	58	61	54	52	56	49	56	56	67	49	558	924
Government	191	250	207	208	198	259	221	198	193	247	2172	3813
Nonprofit organization	167	193	203	212	210	217	206	260	250	201	2119	3373
Industry	246	267	306	263	286	288	354	342	350	424	3126	4124
Self-employed	30	51	45	78	91	54	82	77	70	67	645	820
Other & unknown	9	10	7	6	6	8	13	21	14	11	105	206
Total	1495	1601	1583	1615	1588	1658	1766	1697	1765	1974	16742	30962
Total, sciences												
College/university ...	777	748	737	777	721	755	802	720	782	921	7740	17326
Elem/sec school	58	61	54	52	56	49	56	56	67	49	558	924
Government	185	245	197	201	190	244	210	188	185	219	2064	3671
Nonprofit organization	166	192	203	209	210	216	204	258	247	199	2104	3352
Industry	217	240	280	236	254	245	301	293	301	347	2714	3613
Self-employed	30	51	44	77	90	54	82	77	69	67	641	815
Other & unknown	9	9	7	6	6	8	13	21	14	11	104	205
Total	1442	1546	1522	1558	1527	1571	1668	1613	1665	1813	15925	29906
Physical sciences												
College/university ...	27	16	23	29	19	38	26	31	27	28	264	786
Elem/sec school	-	-	-	-	-	-	2	1	-	-	3	14
Government	8	15	8	9	16	12	16	9	4	12	109	192
Nonprofit organization	1	4	2	1	-	3	2	5	4	3	25	53
Industry	78	90	95	76	81	95	92	87	83	128	905	1258
Self-employed	1	1	-	-	-	-	1	-	-	-	3	5
Other & unknown	-	-	-	-	-	-	-	1	-	2	3	6
Total	115	126	128	115	116	148	139	134	118	173	1312	2314
Earth, atmos, & marine sciences												
College/university ...	11	6	12	21	19	18	23	21	25	21	177	262
Elem/sec school	-	-	-	-	-	-	1	1	-	-	2	3
Government	5	7	5	3	11	12	7	12	10	13	85	117
Nonprofit organization	-	-	-	2	-	-	-	1	-	-	3	11
Industry	9	12	22	12	10	9	5	8	7	10	104	146
Self-employed	-	-	-	-	2	1	-	2	1	-	6	6
Other & unknown	-	-	-	-	-	-	-	-	-	-	-	-
Total	25	25	39	38	42	40	36	45	43	44	377	545
Mathematics												
College/university ...	47	46	37	46	58	42	39	39	39	68	461	1140
Elem/sec school	2	-	-	1	-	-	-	1	-	-	4	8
Government	1	3	5	6	1	3	2	1	2	1	25	51
Nonprofit organization	-	1	-	1	2	-	-	2	1	2	9	20
Industry	8	13	12	8	6	8	12	8	10	6	91	154
Self-employed	-	-	-	1	-	-	-	-	-	-	1	2
Other & unknown	-	-	-	-	-	-	-	-	-	-	-	1
Total	58	63	54	63	67	53	53	51	52	77	591	1376
Computer/information sciences												
College/university ...	9	9	7	13	14	11	17	28	28	41	177	193
Elem/sec school	-	-	-	-	-	-	-	-	-	-	-	-
Government	3	-	1	1	1	-	-	-	3	-	9	11
Nonprofit organization	-	-	-	-	3	1	2	1	-	-	7	9
Industry	4	7	5	4	4	1	5	9	7	22	68	75
Self-employed	-	-	-	1	-	-	1	-	-	-	2	2
Other & unknown	-	-	-	-	-	1	-	-	-	-	1	1
Total	16	16	13	19	22	14	25	38	38	63	264	291

See footnotes at end of table.

Table 14. Employment sector of science and engineering doctorates with definite employment commitments in the United States by major field and sex(1): 1960-89--continued

Employment sector	Total 1960-1964	Total 1965-1969	Total 1960-1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	Total 1970-1979
	Year of doctorate													
FEMALE														
Agricultural & biological sciences														
College/university ...	279	470	749	101	134	99	144	121	129	118	104	115	115	1180
Elem/sec school	2	1	3	1	2	4	1	4	2	1	2	1	1	19
Government	31	43	74	6	7	8	13	13	13	6	16	17	21	120
Nonprofit organization	22	45	67	7	3	15	9	7	9	9	7	12	8	86
Industry	12	20	32	7	8	2	12	9	8	13	21	16	25	121
Self-employed	-	1	1	2	-	-	-	1	2	-	1	1	-	7
Other & unknown	3	3	6	1	-	1	-	-	-	-	1	-	1	4
Total	349	583	932	125	154	129	179	155	163	147	152	162	171	1537
Social sciences														
College/university ...	217	540	757	160	230	245	259	320	340	337	318	330	310	2849
Elem/sec school	8	3	11	-	-	2	1	-	1	-	-	2	2	8
Government	26	30	56	6	16	14	17	20	17	31	24	21	48	214
Nonprofit organization	18	23	41	5	13	8	18	13	14	17	19	19	31	157
Industry	3	12	15	3	3	6	7	5	8	12	7	22	16	89
Self-employed	5	2	7	-	-	3	-	1	4	3	2	1	5	19
Other & unknown	5	1	6	3	-	3	2	1	1	4	5	3	5	27
Total	282	611	893	177	262	281	304	360	385	404	375	398	417	3363
Psychology														
College/university ...	244	445	689	122	151	190	184	234	230	225	258	217	249	2060
Elem/sec school	29	44	73	8	15	19	20	15	29	34	33	37	26	236
Government	93	146	239	45	53	53	83	71	80	92	90	70	124	761
Nonprofit organization	58	123	181	24	26	36	52	53	70	66	95	122	123	667
Industry	6	14	20	7	4	8	12	9	11	23	16	29	38	157
Self-employed	16	15	31	7	3	5	4	8	8	19	13	15	24	106
Other & unknown	13	8	21	5	4	4	8	3	4	-	1	3	1	33
Total	459	795	1254	218	256	315	363	393	432	459	506	493	585	4020
Engineering(2)														
College/university ...	6	9	15	3	1	5	7	8	15	9	12	13	11	84
Elem/sec school	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Government	2	1	3	1	-	2	3	1	4	3	6	5	6	31
Nonprofit organization	1	1	2	-	-	-	-	-	1	-	1	-	2	4
Industry	5	10	15	1	3	2	7	4	11	10	16	12	18	84
Self-employed	-	-	-	-	-	-	1	-	-	-	-	-	-	1
Other & unknown	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	14	21	35	5	4	9	18	13	31	22	35	30	37	204
Total, non-science and engineering(3)														
College/university ...	1848	3812	5660	1183	1253	1442	1540	1529	1712	1847	1778	1778	1860	15922
Elem/sec school	293	452	745	97	148	191	209	246	296	347	350	355	397	2636
Government	62	134	196	43	68	69	103	107	176	158	179	210	241	1354
Nonprofit organization	72	126	198	40	50	52	64	68	98	120	107	119	143	861
Industry	10	24	34	10	9	14	19	33	42	27	43	55	80	332
Self-employed	15	15	30	9	8	5	12	8	21	19	20	33	31	166
Other & unknown	13	22	35	8	6	6	8	4	5	10	5	3	10	65
Total	2313	4585	6898	1390	1542	1779	1955	1995	2350	2528	2482	2553	2762	21336
Total, all fields														
College/university ...	2750	5606	8356	1651	1842	2062	2220	2287	2507	2626	2540	2532	2644	22911
Elem/sec school	334	501	835	106	166	219	233	266	330	383	386	396	427	2912
Government	224	375	599	107	151	153	228	218	302	305	324	343	461	2592
Nonprofit organization	173	331	504	81	92	113	143	144	194	217	234	278	313	1809
Industry	87	146	233	40	35	42	84	85	121	123	143	207	251	1131
Self-employed	36	34	70	18	12	13	18	18	35	41	36	50	60	301
Other & unknown	34	37	71	18	10	14	18	8	10	14	12	9	17	130
Total	3638	7030	10668	2021	2308	2616	2944	3026	3499	3709	3675	3815	4173	31786

See footnotes at end of table.

Table 14. Employment sector of science and engineering doctorates with definite employment commitments in the United States by major field and sex(1): 1960-89--continued

	Year of doctorate											
Employment sector	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1980-1989	Total 1960-1989
FEMALE												
Agricultural & biological sciences												
College/university ...	126	124	115	122	92	124	125	121	111	145	1205	3134
Elem/sec school	-	1	-	2	1	3	2	-	2	4	15	37
Government	27	34	26	41	28	37	29	19	36	35	312	506
Nonprofit organization	10	9	19	9	4	11	6	14	9	12	103	256
Industry	40	38	56	43	50	46	56	48	53	63	493	646
Self-employed	-	3	4	3	-	3	3	3	6	4	29	37
Other & unknown	-	-	-	-	-	-	-	-	-	-	-	10
Total	203	209	220	220	175	224	221	205	217	263	2157	4626
Social sciences												
College/university ...	293	283	299	301	272	266	326	270	309	342	2961	6567
Elem/sec school	5	3	5	6	3	2	6	5	10	3	48	67
Government	37	47	41	33	38	50	47	39	38	57	427	697
Nonprofit organization	28	36	29	27	35	32	37	47	47	32	350	548
Industry	27	27	25	32	28	24	33	33	31	16	276	380
Self-employed	2	6	4	8	13	8	10	9	12	8	80	106
Other & unknown	6	7	6	3	5	6	9	8	9	4	63	96
Total	398	409	409	410	394	388	468	411	456	462	4205	8461
Psychology												
College/university ...	264	264	244	245	247	256	246	210	243	276	2495	5244
Elem/sec school	51	57	49	43	52	44	45	48	55	42	486	795
Government	104	139	111	108	95	130	109	108	92	101	1097	2097
Nonprofit organization	127	142	153	169	166	169	157	188	186	150	1607	2455
Industry	51	53	65	61	75	62	98	100	110	102	777	954
Self-employed	27	41	36	64	75	42	67	63	50	55	520	657
Other & unknown	3	2	1	3	1	1	4	12	5	5	37	91
Total	627	698	659	693	711	704	726	729	741	731	7019	12293
Engineering(2)												
College/university ...	17	21	24	19	20	28	32	23	39	54	277	376
Elem/sec school	-	-	-	-	-	-	-	-	-	-	-	-
Government	6	5	10	7	8	15	11	10	8	28	108	142
Nonprofit organization	1	1	-	3	-	1	2	2	3	2	15	21
Industry	29	27	26	27	32	43	53	49	49	77	412	511
Self-employed	-	-	1	1	1	-	-	-	1	-	4	5
Other & unknown	-	1	-	-	-	-	-	-	-	-	1	1
Total	53	55	61	57	61	87	98	84	100	161	817	1056
Total, non-science and engineering(3)												
College/university ...	1978	2023	1975	1930	1949	1891	2003	2066	2092	2263	20170	41752
Elem/sec school	524	549	517	607	559	557	664	621	634	624	5856	9237
Government	230	283	280	229	272	289	295	214	239	272	2603	4153
Nonprofit organization	146	158	202	199	189	202	182	203	191	213	1885	2944
Industry	112	90	121	110	114	113	129	106	110	111	1116	1482
Self-employed	46	66	84	81	74	77	80	68	87	75	738	934
Other & unknown	7	4	11	9	5	5	5	9	8	5	68	168
Total	3043	3173	3190	3165	3162	3134	3358	3287	3361	3563	32436	60670
Total, all fields												
College/university ...	2772	2792	2736	2726	2690	2674	2837	2809	2913	3238	28187	59454
Elem/sec school	582	610	571	659	615	606	720	677	701	673	6414	10161
Government	421	533	487	437	470	548	516	412	432	519	4775	7966
Nonprofit organization	313	351	405	411	399	419	388	463	441	414	4004	6317
Industry	358	357	427	373	400	401	483	448	460	535	4242	5606
Self-employed	76	117	129	159	165	131	162	145	157	142	1383	1754
Other & unknown	16	14	18	15	11	13	18	30	22	16	173	374
Total	4538	4774	4773	4780	4750	4792	5124	4984	5126	5537	49178	91632

(1) Only doctorates with definite employment commitments in the United States are reported here. Approximately two-thirds of all S/E doctorates have definite postgraduation plans at receipt of doctorate. See Table 15 for actual numbers by field of study. A "definite commitment" is defined as having a signed contract, acceptance of a formal offer, etc.

(2) Subtotal includes engineering fields not separately shown.

(3) Non-science/engineering doctorates in this table include doctorates whose field of specialization is unclassified.

SOURCE: Survey of Earned Doctorates

Table 15. Postgraduation plans of science and engineering doctorates by major field and citizenship status: selected years

	Postgraduation plans										
				Definite plans in the United States							
Field of study	Total docts	Total with defin plans	% with defin plans	Total	Pdoc study	Acad empl	Indus empl	Other empl	Unkn type	Defin plans abroad	Defin plans locn unkn
YEAR OF DOCTORATE - 1970											
TOTAL DOCTORATES(1)											
Total, science/engineering	18044	13830	76.6	12026	2789	5263	2447	1506	21	1337	467
Total, sciences	14598	11322	77.6	9826	2645	4676	1328	1160	17	1146	350
Physical sciences	3893	2951	75.8	2626	1002	573	801	247	3	248	77
Physics/astronomy	1655	1182	71.4	1024	398	282	195	149	-	125	33
Chemistry	2238	1769	79.0	1602	604	291	606	98	3	123	44
Earth, atmos, & marine sci	498	396	79.5	339	73	148	72	46	-	51	6
Mathematics	1225	916	74.8	821	52	617	99	52	1	72	23
Computer/info sciences	-	-	-	-	-	-	-	-	-	-	-
Agric & biolog sci	4165	3220	77.3	2732	1252	1005	207	261	7	395	93
Agricultural sciences	804	590	73.4	427	62	219	85	61	-	136	27
Biological sciences	3361	2630	78.3	2305	1190	786	122	200	7	259	66
Social sciences	2927	2404	82.1	1997	78	1648	73	194	4	306	101
Psychology	1890	1435	75.9	1311	188	685	76	360	2	74	50
Total, engineering(2)	3446	2508	72.8	2200	144	587	1119	346	4	191	117
Chemical	445	343	77.1	303	17	48	224	14	-	25	15
Civil	311	220	70.7	175	11	86	53	24	1	32	13
Electrical/electronics	857	601	70.1	541	30	134	285	91	1	34	26
Materials science	35	25	71.4	22	3	1	13	5	-	2	1
Mechanical	635	455	71.7	412	15	133	197	67	-	29	14
Total, non-sci/eng(3)	11454	8766	76.5	7896	145	6274	138	1303	36	527	343
Total, all fields	29498	22596	76.6	19922	2934	11537	2585	2809	57	1864	810
U.S. CITIZENS											
Total, science/engineering	14567	11641	79.9	10765	2302	4833	2170	1445	15	501	375
Total, sciences	12049	9642	80.0	8901	2218	4326	1228	1116	13	458	283
Physical sciences	3211	2545	79.3	2329	817	533	740	238	1	152	64
Physics/astronomy	1337	993	74.3	894	321	255	175	143	-	73	26
Chemistry	1874	1552	82.8	1435	496	278	565	95	1	79	38
Earth, atmos, & marine sci	396	324	81.8	301	55	136	64	46	-	17	6
Mathematics	1018	793	77.9	744	41	563	88	51	1	27	22
Computer/info sciences	-	-	-	-	-	-	-	-	-	-	-
Agric & biolog sci	3359	2674	79.6	2468	1067	954	191	249	7	138	68
Agricultural sciences	555	421	75.9	386	38	210	78	60	-	20	15
Biological sciences	2804	2253	80.3	2082	1029	744	113	189	7	118	53
Social sciences	2290	1950	85.2	1793	64	1476	70	180	3	78	79
Psychology	1775	1356	76.4	1266	174	664	75	352	1	46	44
Total, engineering(2)	2518	1999	79.4	1864	84	507	942	329	2	43	92
Chemical	310	267	86.1	249	8	43	184	14	-	8	10
Civil	166	143	86.1	130	3	66	41	20	-	6	7
Electrical/electronics	667	481	72.1	454	20	109	235	89	1	5	22
Materials science	29	21	72.4	19	2	-	12	5	-	1	1
Mechanical	485	383	79.0	367	13	122	166	66	-	6	10
Total, non-sci/eng(3)	10348	8138	78.6	7617	122	6042	130	1291	32	210	311
Total, all fields	24915	19779	79.4	18382	2424	10875	2300	2736	47	711	686
NON-U.S. CITIZENS, PERMANENT RESIDENTS											
Total, science/engineering	1242	769	61.9	665	186	245	196	34	4	62	42
Total, sciences	808	537	66.5	462	162	202	72	24	2	51	24
Physical sciences	263	152	57.8	136	70	17	41	7	1	9	7
Physics/astronomy	99	60	60.6	51	24	10	12	5	-	5	4
Chemistry	164	92	56.1	85	46	7	29	2	1	4	3
Earth, atmos, & marine sci	29	19	65.5	18	5	6	7	-	-	1	-
Mathematics	58	38	65.5	32	2	21	8	1	-	5	1
Computer/info sciences	-	-	-	-	-	-	-	-	-	-	-
Agric & biolog sci	218	144	66.1	121	69	31	15	6	-	15	8
Agricultural sciences	47	25	53.2	17	4	6	7	-	-	6	2
Biological sciences	171	119	69.6	104	65	25	8	6	-	9	6
Social sciences	199	154	77.4	129	7	116	1	5	-	20	5
Psychology	41	30	73.2	26	9	11	-	5	1	1	3
Total, engineering(2)	434	232	53.5	203	24	43	124	10	2	11	18
Chemical	82	43	52.4	37	5	4	28	-	-	2	4
Civil	58	32	55.2	23	1	13	6	2	1	5	4
Electrical/electronics	93	56	60.2	51	5	10	34	2	-	1	4
Materials science	2	1	50.0	1	-	-	1	-	-	-	-
Mechanical	72	35	48.6	32	1	6	24	1	-	1	2
Total, non-sci/eng(3)	334	225	67.4	184	11	159	6	7	1	26	15
Total, all fields	1576	994	63.1	849	197	404	202	41	5	88	57
NON-U.S. CITIZENS, TEMPORARY RESIDENTS											
Total, science/engineering	2053	1405	68.4	581	296	180	77	26	2	774	50
Total, sciences	1579	1129	71.5	449	260	143	25	19	2	637	43
Physical sciences	363	249	68.6	156	113	23	17	2	1	87	6
Physics/astronomy	187	128	68.4	78	53	17	7	1	-	47	3
Chemistry	176	121	68.8	78	60	6	10	1	1	40	3
Earth, atmos, & marine sci	68	52	76.5	19	13	5	1	-	-	33	-
Mathematics	134	84	62.7	44	9	32	3	-	-	40	-
Computer/info sciences	-	-	-	-	-	-	-	-	-	-	-
Agric & biolog sci	560	400	71.4	141	114	20	1	6	-	242	17
Agricultural sciences	199	144	72.4	24	20	3	-	1	-	110	10
Biological sciences	361	256	70.9	117	94	17	1	5	-	132	7
Social sciences	396	298	75.3	73	7	54	2	9	1	208	17
Psychology	58	46	79.3	16	4	9	1	2	-	27	3
Total, engineering(2)	474	276	58.2	132	36	37	52	7	-	137	7
Chemical	52	33	63.5	17	4	1	12	-	-	15	1
Civil	86	45	52.3	22	7	7	6	2	-	21	2
Electrical/electronics	93	63	67.7	35	5	15	15	-	-	28	-
Materials science	4	3	75.0	2	1	1	-	-	-	1	-
Mechanical	76	37	48.7	13	1	5	7	-	-	22	2
Total, non-sci/eng(3)	519	392	75.5	85	12	64	1	5	3	291	16
Total, all fields	2572	1797	69.9	666	308	244	78	31	5	1065	66

See footnotes at end of table.

Table 15. Postgraduation plans of science and engineering doctorates by major field and citizenship status: selected years--continued

		Postgraduation plans									
				Definite plans in the United States							
Field of study	Total docts	Total with defin plans	% with defin plans	Total	Pdoc study	Acad empl	Indus empl	Other empl	Unkn type	Defin plans abroad	Defin plans locn unkn
YEAR OF DOCTORATE - 1975											
TOTAL DOCTORATES(1)											
Total, science/engineering ...	18710	13162	70.3	11390	3130	4287	1957	1943	73	1476	296
Total, sciences	15699	11106	70.7	9624	2936	3898	1130	1597	63	1236	246
Physical sciences..........	3076	2145	69.7	1883	969	214	521	171	8	212	50
Physics/astronomy	1300	843	64.8	716	384	97	120	114	1	110	17
Chemistry	1776	1302	73.3	1167	585	117	401	57	7	102	33
Earth, atmos, & marine sci .	625	469	75.0	409	85	103	112	107	2	50	10
Mathematics	1147	755	65.8	648	55	436	87	64	6	93	14
Computer/info sciences	-	-	-	-	-	-	-	-	-	-	-
Agric & biolog sci	4402	3172	72.1	2694	1495	707	213	261	18	412	66
Agricultural sciences	905	643	71.0	457	74	211	103	63	6	170	16
Biological sciences	3497	2529	72.3	2237	1421	496	110	198	12	242	50
Social sciences	3698	2649	71.6	2227	72	1686	108	340	21	366	56
Psychology	2751	1916	69.6	1763	260	752	89	654	8	103	50
Total, engineering(2)	3011	2056	68.3	1766	194	389	827	346	10	240	50
Chemical	370	278	75.1	241	19	12	193	16	1	27	10
Civil	290	208	71.7	160	10	56	69	25	-	40	8
Electrical/electronics ...	612	396	64.7	351	44	69	163	72	3	37	8
Materials science	132	83	62.9	70	18	6	29	17	-	11	2
Mechanical	487	315	64.7	283	31	54	135	60	3	25	7
Total, non-sci/eng(3)	14241	9762	68.5	8899	214	5847	253	2480	105	601	262
Total, all fields	32951	22924	69.6	20289	3344	10134	2210	4423	178	2077	558
U.S. CITIZENS											
Total, science/engineering ...	14288	10609	74.3	9998	2549	3963	1571	1859	56	405	206
Total, sciences	12571	9278	73.8	8718	2456	3648	1023	1539	52	374	186
Physical sciences..........	2317	1720	74.2	1597	754	202	468	168	5	92	31
Physics/astronomy	925	628	67.9	581	283	89	97	112	-	37	10
Chemistry	1392	1092	78.4	1016	471	113	371	56	5	55	21
Earth, atmos, & marine sci .	491	382	77.8	368	64	96	104	102	2	8	6
Mathematics	848	596	70.3	569	38	390	74	61	6	19	8
Computer/info sciences	-	-	-	-	-	-	-	-	-	-	-
Agric & biolog sci	3473	2619	75.4	2433	1300	676	192	252	13	132	54
Agricultural sciences	563	436	77.4	409	47	206	90	62	4	16	11
Biological sciences	2910	2183	75.0	2024	1253	470	102	190	9	116	43
Social sciences	2890	2155	74.6	2044	58	1553	97	318	18	73	38
Psychology	2552	1806	70.8	1707	242	731	88	638	8	50	49
Total, engineering(2)	1717	1331	77.5	1280	93	315	548	320	4	31	20
Chemical	190	168	88.4	162	11	10	130	11	-	3	3
Civil	132	103	78.0	100	2	47	30	21	-	2	1
Electrical/electronics ...	356	258	72.5	249	21	50	108	69	1	4	5
Materials science	76	58	76.3	54	11	6	21	16	-	3	1
Mechanical	274	211	77.0	205	11	46	89	58	1	3	3
Total, non-sci/eng(3)	12793	8951	70.0	8548	175	5598	231	2445	99	168	235
Total, all fields	27081	19560	72.2	18546	2724	9561	1802	4304	155	573	441
NON-U.S. CITIZENS, PERMANENT RESIDENTS											
Total, science/engineering ...	1269	760	59.9	663	230	155	223	47	8	64	33
Total, sciences	849	507	59.7	430	200	128	66	30	6	58	19
Physical sciences..........	236	142	60.2	128	81	7	35	2	3	10	4
Physics/astronomy	109	64	58.7	56	34	4	16	1	1	8	-
Chemistry	127	78	61.4	72	47	3	19	1	2	2	4
Earth, atmos, & marine sci .	36	24	66.7	20	8	6	3	3	-	2	2
Mathematics	75	39	52.0	34	2	20	11	1	-	3	2
Computer/info sciences	-	-	-	-	-	-	-	-	-	-	-
Agric & biolog sci	260	153	58.8	132	99	17	8	7	1	17	4
Agricultural sciences	70	29	41.4	19	11	1	5	1	1	9	1
Biological sciences	190	124	65.3	113	88	16	3	6	-	8	3
Social sciences	187	112	59.9	88	5	67	8	6	2	17	7
Psychology	55	37	67.3	28	5	11	1	11	-	9	-
Total, engineering(2)	420	253	60.2	233	30	27	157	17	2	6	14
Chemical	65	39	60.0	34	1	-	29	4	-	-	5
Civil	42	34	81.0	30	3	4	21	2	-	-	4
Electrical/electronics ...	72	36	50.0	35	2	4	27	1	1	1	-
Materials science	20	8	40.0	7	2	-	4	1	-	1	-
Mechanical	85	49	57.6	47	8	4	34	1	-	-	2
Total, non-sci/eng(3)	445	280	62.9	238	15	177	17	26	3	34	8
Total, all fields	1714	1040	60.7	901	245	332	240	73	11	98	41
NON-U.S. CITIZENS, TEMPORARY RESIDENTS											
Total, science/engineering ...	2787	1767	63.4	710	348	160	159	34	9	1002	55
Total, sciences	1966	1296	65.9	458	277	113	38	25	5	799	39
Physical sciences..........	458	278	60.7	155	134	5	16	-	-	110	13
Physics/astronomy	244	149	61.1	78	67	4	7	-	-	65	6
Chemistry	214	129	60.3	77	67	1	9	-	-	45	7
Earth, atmos, & marine sci .	89	60	67.4	20	12	1	5	2	-	38	2
Mathematics	197	119	60.4	44	15	26	1	2	-	71	4
Computer/info sciences	-	-	-	-	-	-	-	-	-	-	-
Agric & biolog sci	584	399	68.3	128	96	13	13	2	4	263	8
Agricultural sciences	267	177	66.3	28	16	3	8	-	1	145	4
Biological sciences	317	222	70.0	100	80	10	5	2	3	118	4
Social sciences	537	372	69.3	87	8	60	3	15	1	274	11
Psychology	101	68	67.3	24	12	8	-	4	-	43	1
Total, engineering(2)	821	471	57.4	252	71	47	121	9	4	203	16
Chemical	111	71	64.0	45	7	2	34	1	1	24	2
Civil	107	71	66.4	30	5	5	18	2	-	38	3
Electrical/electronics ...	175	102	58.3	67	21	15	28	2	1	32	3
Materials science	28	17	60.7	9	5	-	4	-	-	7	1
Mechanical	122	55	45.1	31	12	4	12	1	2	22	2
Total, non-sci/eng(3)	749	511	68.2	98	23	63	3	6	3	395	18
Total, all fields	3536	2278	64.4	808	371	223	162	40	12	1397	73

See footnotes at end of table.

Table 15. Postgraduation plans of science and engineering doctorates by major field and citizenship status: selected years--continued

		Postgraduation plans									
				Definite plans in the United States							
Field of study	Total docts	Total with defin plans	% with defin plans	Total	Pdoc study	Acad empl	Indus empl	Other empl	Unkn type	Defin plans abroad	Defin plans locn unkn
YEAR OF DOCTORATE - 1980											
TOTAL DOCTORATES(1)											
Total, science/engineering	17524	12617	72.0	10886	3571	3228	2240	1817	30	1237	494
Total, sciences	15045	10783	71.7	9366	3381	2876	1501	1582	26	1015	402
Physical sciences	2521	1896	75.2	1713	784	144	653	129	3	141	42
Physics/astronomy	983	717	72.9	632	333	69	156	73	1	70	15
Chemistry	1538	1179	76.7	1081	451	75	497	56	2	71	27
Earth, atmos, & marine sci	628	486	77.4	425	134	101	110	80	-	46	15
Mathematics	744	541	72.7	476	54	303	85	32	2	46	19
Computer/info sciences	218	160	73.4	145	12	63	57	13	-	9	6
Agric & biolog sci	4715	3443	73.0	2938	1911	562	242	213	10	400	105
Agricultural sciences	912	634	69.5	421	77	199	90	53	2	184	29
Biological sciences	3803	2809	73.9	2517	1834	363	152	160	8	216	76
Social sciences	3121	2172	69.6	1751	124	1135	136	351	5	326	95
Psychology	3098	2085	67.3	1918	362	568	218	764	6	47	120
Total, engineering(2)	2479	1834	74.0	1520	190	352	739	235	4	222	92
Chemical	285	217	76.1	193	22	42	120	9	-	15	9
Civil	240	175	72.9	116	13	53	36	14	-	47	12
Electrical/electronics	478	356	74.5	312	34	55	168	54	1	20	24
Materials science	143	109	76.2	97	17	9	63	7	1	7	5
Mechanical	384	275	71.6	232	29	58	109	35	1	32	11
Total, non-sci/eng(3)	13496	9302	68.9	8034	253	4682	434	2634	31	630	638
Total, all fields	31020	21919	70.7	18920	3824	7910	2674	4451	61	1867	1132
U.S. CITIZENS											
Total, science/engineering	13410	10158	75.7	9516	3014	2939	1808	1732	23	289	353
Total, sciences	12155	9126	75.1	8542	2950	2685	1361	1525	21	270	314
Physical sciences	1884	1515	80.4	1437	595	128	587	125	2	51	27
Physics/astronomy	715	554	77.5	522	255	64	132	71	-	20	12
Chemistry	1169	961	82.2	915	340	64	455	54	2	31	15
Earth, atmos, & marine sci	512	412	80.5	385	110	96	100	79	-	14	13
Mathematics	520	416	80.0	399	38	260	70	30	1	5	12
Computer/info sciences	156	118	75.6	113	8	50	42	13	-	2	3
Agric & biolog sci	3849	2919	75.8	2726	1745	542	222	209	8	121	72
Agricultural sciences	570	413	72.5	388	63	194	77	52	2	14	11
Biological sciences	3279	2506	76.4	2338	1682	348	145	157	6	107	61
Social sciences	2375	1733	73.0	1614	106	1058	126	320	4	50	69
Psychology	2859	2013	70.4	1868	348	551	214	749	6	27	118
Total, engineering(2)	1255	1032	82.2	974	64	254	447	207	2	19	39
Chemical	124	113	91.1	106	5	28	68	5	-	2	5
Civil	98	77	78.6	72	2	37	22	11	-	-	5
Electrical/electronics	270	217	80.4	202	13	38	100	51	-	4	11
Materials science	68	60	88.2	57	6	7	37	6	1	2	1
Mechanical	184	150	81.5	143	7	41	63	31	1	3	4
Total, non-sci/eng(3)	11811	8478	71.8	7777	217	4514	410	2606	30	130	571
Total, all fields	25221	18636	73.9	17293	3231	7453	2218	4338	53	419	924
NON-U.S. CITIZENS, PERMANENT RESIDENTS											
Total, science/engineering	953	623	65.4	552	150	116	244	42	-	33	38
Total, sciences	654	400	61.2	354	139	89	96	30	-	29	17
Physical sciences	151	100	66.2	94	41	4	48	1	-	4	2
Physics/astronomy	51	36	70.6	33	14	1	17	1	-	3	-
Chemistry	100	64	64.0	61	27	3	31	-	-	1	2
Earth, atmos, & marine sci	26	19	73.1	18	10	2	5	1	-	1	-
Mathematics	62	40	64.5	34	5	19	9	1	-	4	2
Computer/info sciences	13	11	84.6	10	-	4	6	-	-	-	1
Agric & biolog sci	186	113	60.8	98	71	9	15	3	-	9	6
Agricultural sciences	35	21	60.0	15	5	2	8	-	-	5	1
Biological sciences	151	92	60.9	83	66	7	7	3	-	4	5
Social sciences	166	86	51.8	70	6	42	9	13	-	11	5
Psychology	50	31	62.0	30	6	9	4	11	-	-	1
Total, engineering(2)	299	223	74.6	198	11	27	148	12	-	4	21
Chemical	40	34	85.0	32	2	3	26	1	-	-	2
Civil	24	17	70.8	15	2	3	9	1	-	-	2
Electrical/electronics	52	43	82.7	38	2	6	28	2	-	-	5
Materials science	19	14	73.7	11	-	2	9	-	-	-	3
Mechanical	59	41	69.5	37	3	4	29	1	-	-	4
Total, non-sci/eng(3)	338	192	56.8	159	12	110	17	19	1	18	15
Total, all fields	1291	815	63.1	711	162	226	261	61	1	51	53
NON-U.S. CITIZENS, TEMPORARY RESIDENTS											
Total, science/engineering	2710	1830	67.5	814	405	171	188	43	7	914	102
Total, sciences	1859	1252	67.3	467	290	101	44	27	5	715	70
Physical sciences	426	279	65.5	180	147	11	18	3	1	86	13
Physics/astronomy	189	126	66.7	76	63	4	7	1	1	47	3
Chemistry	237	153	64.6	104	84	7	11	2	-	39	10
Earth, atmos, & marine sci	80	55	68.8	22	14	3	5	-	-	31	2
Mathematics	139	85	61.2	43	11	24	6	1	1	37	5
Computer/info sciences	43	31	72.1	22	4	9	9	-	-	7	2
Agric & biolog sci	592	411	69.4	114	95	11	5	1	2	270	27
Agricultural sciences	296	200	67.6	18	9	3	5	1	-	165	17
Biological sciences	296	211	71.3	96	86	8	-	-	2	105	10
Social sciences	508	351	69.1	67	12	35	1	18	1	264	20
Psychology	71	40	56.3	19	7	8	-	4	-	20	1
Total, engineering(2)	851	578	67.9	347	115	70	144	16	2	199	32
Chemical	113	70	61.9	55	15	11	26	3	-	13	2
Civil	112	80	71.4	28	9	12	5	2	-	47	5
Electrical/electronics	139	96	69.1	72	19	11	40	1	1	16	8
Materials science	52	35	67.3	29	11	-	17	1	-	5	1
Mechanical	130	84	64.6	52	19	13	17	3	-	29	3
Total, non-sci/eng(3)	934	619	66.3	92	24	56	7	5	-	477	50
Total, all fields	3644	2449	67.2	906	429	227	195	48	7	1391	152

See footnotes at end of table.

Table 15. Postgraduation plans of science and engineering doctorates by major field and citizenship status: selected years--continued

Field of study	Postgraduation plans										
	Total docts	Total with defin plans	% with defin plans	Definite plans in the United States						Defin plans abroad	Defin plans locn unkn
				Total	Pdoc study	Acad empl	Indus empl	Other empl	Unkn type		
YEAR OF DOCTORATE - 1985											
TOTAL DOCTORATES(1)											
Total, science/engineering ...	18711	12472	66.7	10408	3761	2850	2244	1519	34	1416	648
Total, sciences	15545	10489	67.5	8867	3542	2448	1509	1341	27	1101	521
Physical sciences...........	2916	2086	71.5	1828	892	169	650	111	6	168	90
Physics/astronomy	1080	758	70.2	638	333	80	157	67	1	86	34
Chemistry	1836	1328	72.3	1190	559	89	493	44	5	82	56
Earth, atmos, & marine sci .	617	415	67.3	343	132	98	64	48	1	65	7
Mathematics	688	474	68.9	388	60	249	52	25	2	61	25
Computer/info sciences	310	215	69.4	186	20	90	64	12	-	23	6
Agric & biolog sci	4903	3418	69.7	2882	1943	475	278	180	6	422	114
Agricultural sciences	1111	692	62.3	446	106	177	109	54	-	205	41
Biological sciences	3792	2726	71.9	2436	1837	298	169	126	6	217	73
Social sciences	2994	1843	61.6	1402	114	865	128	283	12	314	127
Psychology	3117	2038	65.4	1838	381	502	273	682	-	48	152
Total, engineering(2)	3166	1983	62.6	1541	219	402	735	178	7	315	127
Chemical	440	309	70.2	260	38	33	177	12	-	36	13
Civil	358	200	55.9	125	11	55	42	16	1	61	14
Electrical/electronics ...	631	400	63.4	330	34	89	176	30	1	36	34
Materials science	188	130	69.1	113	31	9	62	10	1	11	6
Mechanical	513	306	59.6	246	31	88	102	23	2	41	19
Total, non-sci/eng(3)	12586	8479	67.4	7065	244	3940	448	2417	16	673	741
Total, all fields	31297	20951	66.9	17473	4005	6790	2692	3936	50	2089	1389
U.S. CITIZENS											
Total, science/engineering ...	12946	9403	72.6	8716	3024	2376	1843	1451	22	294	393
Total, sciences	11667	8426	72.2	7808	2953	2147	1395	1293	20	262	356
Physical sciences...........	2043	1604	78.5	1489	635	143	598	108	5	74	41
Physics/astronomy	698	539	77.2	490	223	63	138	65	1	36	13
Chemistry	1345	1065	79.2	999	412	80	460	43	4	38	28
Earth, atmos, & marine sci .	442	323	73.1	298	102	88	61	46	1	20	5
Mathematics	376	283	75.3	270	34	169	44	23	-	4	9
Computer/info sciences	189	132	69.8	124	7	62	45	10	-	4	4
Agric & biolog sci	3830	2815	73.5	2627	1724	455	268	175	5	106	82
Agricultural sciences	683	444	65.0	405	81	166	105	53	-	17	22
Biological sciences	3147	2371	75.3	2222	1643	289	163	122	5	89	60
Social sciences	1982	1320	66.6	1209	91	741	114	254	9	35	76
Psychology	2805	1949	69.5	1791	360	489	265	677	-	19	139
Total, engineering(2)	1279	977	76.4	908	71	229	448	158	2	32	37
Chemical	218	178	81.7	169	10	20	128	11	-	8	1
Civil	114	80	70.2	72	-	37	22	13	-	5	3
Electrical/electronics ...	247	190	76.9	175	12	42	95	26	-	3	12
Materials science	89	73	82.0	69	10	4	46	9	-	2	2
Mechanical	193	143	74.1	136	10	52	52	21	1	3	4
Total, non-sci/eng(3)	10422	7473	71.7	6714	210	3678	419	2391	16	107	652
Total, all fields	23368	16876	72.2	15430	3234	6054	2262	3842	38	401	1045
NON-U.S. CITIZENS, PERMANENT RESIDENTS											
Total, science/engineering ...	929	535	57.6	453	123	126	176	23	5	41	41
Total, sciences	614	352	57.3	289	115	92	64	15	3	34	29
Physical sciences...........	135	88	65.2	76	38	6	31	-	1	4	8
Physics/astronomy	48	27	56.3	24	13	3	8	-	-	1	2
Chemistry	87	61	70.1	52	25	3	23	-	1	3	6
Earth, atmos, & marine sci .	32	14	43.8	12	4	5	2	1	-	1	1
Mathematics	42	24	57.1	19	6	8	4	-	1	3	2
Computer/info sciences	24	18	75.0	15	1	5	9	-	-	3	-
Agric & biolog sci	151	88	58.3	73	53	11	6	3	-	12	3
Agricultural sciences	43	21	48.8	12	4	5	2	1	-	8	1
Biological sciences	108	67	62.0	61	49	6	4	2	-	4	2
Social sciences	171	84	49.1	66	3	48	5	9	1	10	8
Psychology	59	36	61.0	28	10	9	7	2	-	1	7
Total, engineering(2)	315	183	58.1	164	8	34	112	8	2	7	12
Chemical	39	27	69.2	27	2	2	23	-	-	-	-
Civil	38	20	52.6	18	1	4	12	1	-	1	1
Electrical/electronics ...	65	42	64.6	40	3	10	24	3	-	1	1
Materials science	13	7	53.8	6	-	2	3	-	1	1	-
Mechanical	58	30	51.7	28	1	7	20	-	-	-	2
Total, non-sci/eng(3)	395	228	57.7	180	15	139	15	11	-	32	16
Total, all fields	1324	763	57.6	633	138	265	191	34	5	73	57
NON-U.S. CITIZENS, TEMPORARY RESIDENTS											
Total, science/engineering ...	4028	2522	62.6	1230	610	345	223	45	7	1080	212
Total, sciences	2609	1701	65.2	763	470	207	49	33	4	804	134
Physical sciences...........	620	391	63.1	260	218	19	20	3	-	90	41
Physics/astronomy	290	190	65.5	122	96	13	11	2	-	49	19
Chemistry	330	201	60.9	138	122	6	9	1	-	41	22
Earth, atmos, & marine sci .	119	78	65.5	33	26	5	1	1	-	44	1
Mathematics	238	166	69.7	98	19	72	4	2	1	54	14
Computer/info sciences	89	65	73.0	47	12	23	10	2	-	16	2
Agric & biolog sci	779	512	65.7	180	164	9	4	2	1	303	29
Agricultural sciences	355	226	63.7	29	21	6	2	-	-	179	18
Biological sciences	424	286	67.5	151	143	3	2	2	1	124	11
Social sciences	683	437	64.0	126	20	75	9	20	2	269	42
Psychology	81	52	64.2	19	11	4	1	3	-	28	5
Total, engineering(2)	1419	821	57.9	467	140	138	174	12	3	276	78
Chemical	172	104	60.5	64	26	11	26	1	-	28	12
Civil	192	100	52.1	35	10	14	8	2	1	55	10
Electrical/electronics ...	274	167	60.9	114	19	37	56	1	1	32	21
Materials science	79	50	63.3	38	21	3	13	1	-	8	4
Mechanical	239	133	55.6	82	20	29	30	2	1	38	13
Total, non-sci/eng(3)	1201	768	63.9	164	18	119	14	13	-	532	72
Total, all fields	5229	3290	62.9	1394	628	464	237	58	7	1612	284

See footnotes at end of table.

Table 15. Postgraduation plans of science and engineering doctorates by major field and citizenship status: selected years--continued

	Postgraduation plans										
				Definite plans in the United States							
Field of study	Total docts	Total with defin plans	% with defin plans	Total	Pdoc study	Acad empl	Indus empl	Other empl	Unkn type	Defin plans abroad	Defin plans locn unkn
YEAR OF DOCTORATE - 1986											
TOTAL DOCTORATES(1)											
Total, science/engineering ...	19251	12835	66.7	10662	4039	2753	2286	1544	40	1478	695
Total, sciences	15875	10769	67.8	9037	3745	2320	1558	1377	37	1164	568
Physical sciences...........	3090	2169	70.2	1868	982	141	639	102	4	196	105
Physics/astronomy	1187	797	67.1	662	380	66	147	69	-	100	35
Chemistry	1903	1372	72.1	1206	602	75	492	33	4	96	70
Earth, atmos, & marine sci .	589	375	63.7	311	119	80	64	48	-	56	8
Mathematics	729	490	67.2	404	95	235	54	18	2	58	28
Computer/info sciences	399	266	66.7	224	26	101	81	15	1	30	12
Agric & biolog sci	4805	3390	70.6	2839	2004	391	251	186	7	413	138
Agricultural sciences	998	644	64.5	422	126	147	97	51	1	192	30
Biological sciences	3807	2746	72.1	2417	1878	244	154	135	6	221	108
Social sciences	3139	1983	63.2	1505	135	918	141	299	12	366	112
Psychology	3124	2096	67.1	1886	384	454	328	709	11	45	165
Total, engineering(2)	3376	2066	61.2	1625	294	433	728	167	3	314	127
Chemical	476	318	66.8	268	64	36	158	10	-	30	20
Civil	387	225	58.1	146	18	58	53	16	1	65	14
Electrical/electronics ...	706	446	63.2	370	41	110	186	33	-	43	33
Materials science	187	121	64.7	88	35	7	39	7	-	26	7
Mechanical	536	306	57.1	243	44	78	88	33	-	42	21
Total, non-sci/eng(3)	12644	8462	66.9	7120	263	3993	488	2352	24	635	707
Total, all fields	31895	21297	66.8	17782	4302	6746	2774	3896	64	2113	1402
U.S. CITIZENS											
Total, science/engineering ...	12869	9557	74.3	8810	3147	2255	1893	1485	30	314	433
Total, sciences	11486	8525	74.2	7853	3056	1992	1437	1338	30	275	397
Physical sciences...........	2014	1584	78.6	1450	646	113	591	98	2	80	54
Physics/astronomy	694	523	75.4	476	230	51	128	67	-	34	13
Chemistry	1320	1061	80.4	974	416	62	463	31	2	46	41
Earth, atmos, & marine sci .	422	292	69.2	269	93	73	57	46	-	17	6
Mathematics	366	279	76.2	268	47	153	49	18	1	3	8
Computer/info sciences	202	144	71.3	136	12	60	51	13	-	4	4
Agric & biolog sci	3703	2786	75.2	2574	1785	364	236	182	7	115	97
Agricultural sciences	579	399	68.9	371	91	140	88	51	1	13	15
Biological sciences	3124	2387	76.4	2203	1694	224	148	131	6	102	82
Social sciences	2013	1433	71.2	1321	109	793	128	282	9	39	73
Psychology	2766	2007	72.6	1835	364	436	325	699	11	17	155
Total, engineering(2)	1383	1032	74.6	957	91	263	456	147	-	39	36
Chemical	219	184	84.0	172	22	27	117	6	-	6	6
Civil	122	90	73.8	81	5	35	26	15	-	5	4
Electrical/electronics ...	291	215	73.9	206	10	56	111	29	-	1	8
Materials science	82	59	72.0	46	11	6	23	6	-	10	3
Mechanical	209	144	68.9	137	10	49	47	31	-	3	4
Total, non-sci/eng(3)	10211	7447	72.9	6736	214	3728	455	2316	23	99	612
Total, all fields	23080	17004	73.7	15546	3361	5983	2348	3801	53	413	1045
NON-U.S. CITIZENS, PERMANENT RESIDENTS											
Total, science/engineering ...	987	581	58.9	455	143	125	151	34	2	77	49
Total, sciences	644	379	58.9	288	122	87	54	24	1	59	32
Physical sciences...........	133	85	63.9	71	42	5	21	2	1	7	7
Physics/astronomy	40	25	62.5	20	13	3	3	1	-	3	2
Chemistry	93	60	64.5	51	29	2	18	1	1	4	5
Earth, atmos, & marine sci .	24	12	50.0	10	2	3	4	1	-	2	-
Mathematics	36	14	38.9	12	-	10	2	-	-	-	2
Computer/info sciences	47	37	78.7	28	4	10	12	2	-	4	5
Agric & biolog sci	165	103	62.4	75	56	12	5	2	-	21	7
Agricultural sciences	48	23	47.9	9	5	2	2	-	-	12	2
Biological sciences	117	80	68.4	66	51	10	3	2	-	9	5
Social sciences	174	83	47.7	57	6	36	7	8	-	22	4
Psychology	65	45	69.2	35	12	11	3	9	-	3	7
Total, engineering(2)	343	202	58.9	167	21	38	97	10	1	18	17
Chemical	51	29	56.9	20	4	1	15	-	-	5	4
Civil	45	22	48.9	18	1	11	6	-	-	3	1
Electrical/electronics ...	70	50	71.4	42	5	8	26	3	-	-	8
Materials science	19	12	63.2	10	3	-	7	-	-	1	1
Mechanical	58	33	56.9	29	4	9	15	1	-	2	2
Total, non-sci/eng(3)	445	241	54.2	165	14	110	21	20	-	48	28
Total, all fields	1432	822	57.4	620	157	235	172	54	2	125	77
NON-U.S. CITIZENS, TEMPORARY RESIDENTS											
Total, science/engineering ...	4141	2665	64.4	1382	745	368	236	25	8	1073	210
Total, sciences	2769	1843	66.6	886	564	238	63	15	6	819	138
Physical sciences...........	758	497	65.6	344	294	23	24	2	1	109	44
Physics/astronomy	365	248	67.9	165	137	12	15	1	-	63	20
Chemistry	393	249	63.4	179	157	11	9	1	1	46	24
Earth, atmos, & marine sci .	106	71	67.0	32	24	4	3	1	-	37	2
Mathematics	272	194	71.3	123	48	71	3	-	1	54	17
Computer/info sciences	123	84	68.3	59	9	31	18	-	1	22	3
Agric & biolog sci	711	493	69.3	187	162	14	9	2	-	272	34
Agricultural sciences	320	218	68.1	41	30	5	6	-	-	164	13
Biological sciences	391	275	70.3	146	132	9	3	2	-	108	21
Social sciences	718	460	64.1	125	19	88	6	9	3	300	35
Psychology	81	44	54.3	16	8	7	-	1	-	25	3
Total, engineering(2)	1372	822	59.9	496	181	130	173	10	2	254	72
Chemical	175	105	60.0	76	38	8	26	4	-	19	10
Civil	189	111	58.7	46	12	11	21	1	1	56	9
Electrical/electronics ...	275	178	64.7	121	26	46	48	1	-	42	15
Materials science	75	50	66.7	32	21	1	9	1	-	15	3
Mechanical	231	128	55.4	77	30	20	26	1	-	36	15
Total, non-sci/eng(3)	1135	759	66.9	214	35	152	12	14	1	481	64
Total, all fields	5276	3424	64.9	1596	780	520	248	39	9	1554	274

See footnotes at end of table.

Table 15. Postgraduation plans of science and engineering doctorates by major field and citizenship status: selected years--continued

	Postgraduation plans										
		Total with defin plans	% with defin plans	Definite plans in the United States							Defin plans locn unkn
Field of study	Total docts			Total	Pdoc study	Acad empl	Indus empl	Other empl	Unkn type	Defin plans abroad	
YEAR OF DOCTORATE - 1987											
TOTAL DOCTORATES(1)											
Total, science/engineering	19702	12899	65.5	10609	4323	2653	2092	1505	36	1487	803
Total, sciences	15991	10684	66.8	8929	3997	2221	1371	1312	28	1113	642
Physical sciences	3212	2300	71.6	1939	1150	149	532	103	5	227	134
Physics/astronomy	1237	845	68.3	679	453	57	114	54	1	119	47
Chemistry	1975	1455	73.7	1260	697	92	418	49	4	108	87
Earth, atmos, & marine sci	628	421	67.0	351	141	94	53	63	-	54	16
Mathematics	740	466	63.0	357	96	196	47	17	1	82	27
Computer/info sciences	450	301	66.9	266	29	161	65	9	2	24	11
Agric & biolog sci	4812	3370	70.0	2838	2067	356	230	180	5	382	150
Agricultural sciences	976	616	63.1	393	117	137	93	46	-	190	33
Biological sciences	3836	2754	71.8	2445	1950	219	137	134	5	192	117
Social sciences	2980	1813	60.8	1383	134	854	124	265	6	303	127
Psychology	3169	2013	63.5	1795	380	411	320	675	9	41	177
Total, engineering(2)	3711	2215	59.7	1680	326	432	721	193	8	374	161
Chemical	527	351	66.6	288	64	34	171	18	1	41	22
Civil	441	248	56.2	153	23	57	53	19	1	77	18
Electrical/electronics	691	401	58.0	331	51	99	147	32	2	43	27
Materials science	238	150	63.0	110	37	9	48	15	1	30	10
Mechanical	656	359	54.7	265	53	72	108	32	-	58	36
Total, non-sci/eng(3)	12654	8457	66.8	7052	306	4077	411	2218	40	600	805
Total, all fields	32356	21356	66.0	17661	4629	6730	2503	3723	76	2087	1608
U.S. CITIZENS											
Total, science/engineering	12819	9413	73.4	8633	3260	2200	1722	1426	25	310	470
Total, sciences	11262	8267	73.4	7575	3140	1908	1249	1256	22	258	434
Physical sciences	2080	1643	79.0	1480	761	132	486	98	3	95	68
Physics/astronomy	699	531	76.0	466	271	46	97	51	1	43	22
Chemistry	1381	1112	80.5	1014	490	86	389	47	2	52	46
Earth, atmos, & marine sci	425	327	76.9	306	104	92	49	61	-	12	9
Mathematics	345	243	70.4	231	47	130	37	17	-	6	6
Computer/info sciences	243	174	71.6	162	18	93	43	7	1	6	6
Agric & biolog sci	3566	2673	75.0	2488	1754	338	214	177	5	90	95
Agricultural sciences	584	391	67.0	357	97	132	84	44	-	17	17
Biological sciences	2982	2282	76.5	2131	1657	206	130	133	5	73	78
Social sciences	1856	1288	69.4	1173	102	723	107	237	4	32	83
Psychology	2747	1919	69.9	1735	354	400	313	659	9	17	167
Total, engineering(2)	1557	1146	73.6	1058	120	292	473	170	3	52	36
Chemical	280	218	77.9	198	23	26	132	17	-	15	5
Civil	146	109	74.7	103	9	45	32	17	-	4	2
Electrical/electronics	291	204	70.1	192	22	53	87	29	1	3	9
Materials science	108	81	75.0	70	15	6	34	14	1	8	3
Mechanical	240	170	70.8	158	17	48	64	29	-	7	5
Total, non-sci/eng(3)	10160	7399	72.8	6624	255	3767	383	2182	37	94	681
Total, all fields	22979	16812	73.2	15257	3515	5967	2105	3608	62	404	1151
NON-U.S. CITIZENS, PERMANENT RESIDENTS											
Total, science/engineering	1086	608	56.0	474	186	121	139	27	1	74	60
Total, sciences	731	421	57.6	320	161	89	51	19	-	63	38
Physical sciences	147	87	59.2	73	49	2	19	3	-	9	5
Physics/astronomy	56	36	64.3	27	18	1	6	2	-	7	2
Chemistry	91	51	56.0	46	31	1	13	1	-	2	3
Earth, atmos, & marine sci	25	17	68.0	12	9	-	2	1	-	5	-
Mathematics	51	30	58.8	24	5	15	4	-	-	3	3
Computer/info sciences	32	24	75.0	20	3	8	8	1	-	3	1
Agric & biolog sci	208	124	59.6	95	80	10	4	1	-	16	13
Agricultural sciences	48	20	41.7	9	5	1	3	-	-	7	4
Biological sciences	160	104	65.0	86	75	9	1	1	-	9	9
Social sciences	209	104	49.8	70	7	48	8	7	-	23	11
Psychology	59	35	59.3	26	8	6	6	6	-	4	5
Total, engineering(2)	355	187	52.7	154	25	32	88	8	1	11	22
Chemical	48	24	50.0	20	1	5	14	-	-	-	4
Civil	36	21	58.3	15	1	7	7	-	-	3	3
Electrical/electronics	60	37	61.7	35	4	6	23	1	1	1	1
Materials science	22	6	27.3	4	1	1	2	-	-	1	1
Mechanical	67	36	53.7	27	9	3	14	1	-	3	6
Total, non-sci/eng(3)	492	263	53.5	193	22	128	16	25	2	48	22
Total, all fields	1578	871	55.2	667	208	249	155	52	3	122	82
NON-U.S. CITIZENS, TEMPORARY RESIDENTS											
Total, science/engineering	4450	2856	64.2	1494	871	332	230	51	10	1091	271
Total, sciences	2918	1977	67.8	1027	690	224	71	36	6	782	168
Physical sciences	798	567	71.1	386	340	15	27	2	2	122	59
Physics/astronomy	399	276	69.2	186	164	10	11	1	-	68	22
Chemistry	399	291	72.9	200	176	5	16	1	2	54	37
Earth, atmos, & marine sci	125	76	60.8	32	27	2	2	1	-	37	7
Mathematics	302	193	63.9	102	44	51	6	-	1	73	18
Computer/info sciences	143	102	71.3	84	8	60	14	1	1	14	4
Agric & biolog sci	781	565	72.3	251	229	8	12	2	-	272	42
Agricultural sciences	289	202	69.9	27	15	4	6	2	-	163	12
Biological sciences	492	363	73.8	224	214	4	6	-	-	109	30
Social sciences	684	417	61.0	139	25	83	9	20	2	245	33
Psychology	85	57	67.1	33	17	5	1	10	-	19	5
Total, engineering(2)	1532	879	57.4	467	181	108	159	15	4	309	103
Chemical	182	108	59.3	69	40	3	24	1	1	26	13
Civil	220	118	53.6	35	13	5	14	2	1	70	13
Electrical/electronics	264	159	60.2	104	25	40	37	2	-	38	17
Materials science	96	63	65.6	36	21	2	12	1	-	21	6
Mechanical	303	153	50.5	80	27	21	30	2	-	48	25
Total, non-sci/eng(3)	1160	777	67.0	229	29	178	11	10	1	451	97
Total, all fields	5610	3633	64.8	1723	900	510	241	61	11	1542	368

See footnotes at end of table.

Table 15. Postgraduation plans of science and engineering doctorates by major field and citizenship status: selected years--continued

	Postgraduation plans										
				Definite plans in the United States							
Field of study	Total docts	Total with defin plans	% with defin plans	Total	Pdoc study	Acad empl	Indus empl	Other empl	Unkn type	Defin plans abroad	Defin plans locn unkn
YEAR OF DOCTORATE - 1988											
TOTAL DOCTORATES(1)											
Total, science/engineering ...	20738	13649	65.8	11325	4638	2858	2263	1525	41	1491	833
Total, sciences	16549	11152	67.4	9371	4249	2346	1412	1326	38	1126	655
Physical sciences...........	3318	2372	71.5	2048	1255	150	544	93	6	205	119
Physics/astronomy	1302	868	66.7	709	472	62	118	55	2	114	45
Chemistry	2016	1504	74.6	1339	783	88	426	38	4	91	74
Earth, atmos, & marine sci .	728	447	61.4	354	139	84	65	66	-	69	24
Mathematics	749	466	62.2	354	72	229	39	13	1	81	31
Computer/info sciences	515	376	73.0	320	35	168	95	22	-	36	20
Agric & biolog sci	5123	3596	70.2	3012	2231	364	217	191	9	418	166
Agricultural sciences	1015	637	62.8	400	139	109	88	63	1	196	41
Biological sciences	4108	2959	72.0	2612	2092	255	129	128	8	222	125
Social sciences	3052	1867	61.2	1462	128	916	136	270	12	282	123
Psychology	3064	2028	66.2	1821	389	435	316	671	10	35	172
Total, engineering(2)	4189	2497	59.6	1954	389	512	851	199	3	365	178
Chemical	625	432	69.1	351	93	38	204	16	-	61	20
Civil	489	276	56.4	193	27	80	59	27	-	61	22
Electrical/electronics ...	885	503	56.8	407	42	131	200	33	1	61	35
Materials science	252	162	64.3	137	45	13	62	16	1	17	8
Mechanical	715	385	53.8	302	66	99	103	34	-	51	32
Total, non-sci/eng(3)	12742	8540	67.0	7212	337	4122	435	2262	56	614	714
Total, all fields	33480	22189	66.3	18537	4975	6980	2698	3787	97	2105	1547
U.S. CITIZENS											
Total, science/engineering ...	13208	9871	74.7	9097	3464	2287	1864	1452	30	295	479
Total, sciences	11428	8571	75.0	7888	3336	1976	1281	1266	29	251	432
Physical sciences...........	2098	1683	80.2	1556	837	131	498	87	3	71	56
Physics/astronomy	722	543	75.2	490	289	53	97	51	-	36	17
Chemistry	1376	1140	82.8	1066	548	78	401	36	3	35	39
Earth, atmos, & marine sci .	511	354	69.3	316	110	82	61	63	-	20	18
Mathematics	342	240	70.2	231	35	151	33	11	1	4	5
Computer/info sciences	284	225	79.2	206	17	108	59	22	-	8	11
Agric & biolog sci	3666	2805	76.5	2594	1866	335	200	187	6	102	109
Agricultural sciences	539	367	68.1	340	97	102	80	61	-	15	12
Biological sciences	3127	2438	78.0	2254	1769	233	120	126	6	87	97
Social sciences	1861	1325	71.2	1224	102	753	122	238	9	30	71
Psychology	2666	1939	72.7	1761	369	416	308	658	10	16	162
Total, engineering(2)	1780	1300	73.0	1209	128	311	583	186	1	44	47
Chemical	335	258	77.0	229	23	25	166	15	-	17	12
Civil	168	126	75.0	119	6	61	30	22	-	3	4
Electrical/electronics ...	358	250	69.8	236	16	66	122	32	-	5	9
Materials science	119	93	78.2	86	18	8	46	14	-	5	2
Mechanical	256	178	69.5	171	15	57	65	34	-	2	5
Total, non-sci/eng(3)	10065	7442	73.9	6752	288	3776	411	2227	50	92	598
Total, all fields	23273	17313	74.4	15849	3752	6063	2275	3679	80	387	1077
NON-U.S. CITIZENS, PERMANENT RESIDENTS											
Total, science/engineering ...	1129	649	57.5	507	179	140	146	37	5	81	61
Total, sciences	762	456	59.8	351	159	95	61	32	4	62	43
Physical sciences...........	137	86	62.8	66	39	6	16	4	1	11	9
Physics/astronomy	62	42	67.7	33	21	3	6	2	1	6	3
Chemistry	75	44	58.7	33	18	3	10	2	-	5	6
Earth, atmos, & marine sci .	31	17	54.8	12	6	1	3	2	-	4	1
Mathematics	44	29	65.9	23	6	12	5	-	-	2	4
Computer/info sciences	42	30	71.4	28	3	17	8	-	-	-	2
Agric & biolog sci	263	166	63.1	126	96	11	14	4	1	28	12
Agricultural sciences	71	40	56.3	18	7	3	6	2	-	17	5
Biological sciences	192	126	65.6	108	89	8	8	2	1	11	7
Social sciences	185	91	49.2	67	5	39	10	11	2	14	10
Psychology	60	37	61.7	29	4	9	5	11	-	3	5
Total, engineering(2)	367	193	52.6	156	20	45	85	5	1	19	18
Chemical	45	29	64.4	27	7	2	18	-	-	1	1
Civil	44	14	31.8	12	-	5	7	-	-	1	1
Electrical/electronics ...	90	49	54.4	41	-	12	27	1	1	3	5
Materials science	19	13	68.4	11	4	2	3	2	-	1	1
Mechanical	71	30	42.3	20	2	9	9	-	-	6	4
Total, non-sci/eng(3)	489	265	54.2	203	9	147	14	29	4	44	18
Total, all fields	1618	914	56.5	710	188	287	160	66	9	125	79
NON-U.S. CITIZENS, TEMPORARY RESIDENTS											
Total, science/engineering ...	4919	3104	63.1	1706	984	428	252	36	6	1107	291
Total, sciences	3197	2105	65.8	1119	744	273	69	28	5	808	178
Physical sciences...........	865	595	68.8	420	373	13	30	2	2	122	53
Physics/astronomy	423	281	66.4	185	161	6	15	2	1	72	24
Chemistry	442	314	71.0	235	212	7	15	-	1	50	29
Earth, atmos, & marine sci .	137	75	54.7	25	22	1	1	1	-	45	5
Mathematics	305	195	63.9	98	29	66	1	2	-	75	22
Computer/info sciences	176	120	68.2	85	15	43	27	-	-	28	7
Agric & biolog sci	901	621	68.9	292	269	18	3	-	2	284	45
Agricultural sciences	345	227	65.8	42	35	4	2	-	1	161	24
Biological sciences	556	394	70.9	250	234	14	1	-	1	123	21
Social sciences	729	448	61.5	168	20	122	4	21	1	238	42
Psychology	84	51	60.7	31	16	10	3	2	-	16	4
Total, engineering(2)	1722	999	58.0	587	240	155	183	8	1	299	113
Chemical	208	143	68.8	94	63	10	20	1	-	42	7
Civil	250	136	54.4	62	21	14	22	5	-	57	17
Electrical/electronics ...	354	203	57.3	129	25	53	51	-	-	53	21
Materials science	99	56	56.6	40	23	3	13	-	1	11	5
Mechanical	333	176	52.9	111	49	33	29	-	-	42	23
Total, non-sci/eng(3)	1273	820	64.4	253	40	196	10	5	2	471	96
Total, all fields	6192	3924	63.4	1959	1024	624	262	41	8	1578	387

See footnotes at end of table.

Table 15. Postgraduation plans of science and engineering doctorates by major field and citizenship status: selected years—continued

Field of study	Total docts	Postgraduation plans									
		Total with defin plans	% with defin plans	Definite plans in the United States						Defin plans abroad	Defin plans locn unkn
				Total	Pdoc study	Acad empl	Indus empl	Other empl	Unkn type		
YEAR OF DOCTORATE - 1989											
TOTAL DOCTORATES(1)											
Total, science/engineering ...	21516	14034	65.2	11517	4664	2985	2386	1449	33	1590	927
Total, sciences	16980	11373	67.0	9465	4240	2493	1476	1229	27	1166	742
Physical sciences...........	3249	2316	71.3	2016	1196	147	587	80	6	182	118
Physics/astronomy	1278	841	65.8	702	477	58	113	51	3	93	46
Chemistry	1971	1475	74.8	1314	719	89	474	29	3	89	72
Earth, atmos, & marine sci .	738	484	65.6	389	151	78	86	74	-	74	21
Mathematics	861	535	62.1	423	106	259	35	20	3	74	38
Computer/info sciences	612	413	67.5	347	22	211	94	20	-	37	29
Agric & biolog sci	5194	3727	71.8	3096	2242	395	270	179	10	427	204
Agricultural sciences	1088	687	63.1	450	169	118	102	60	1	181	56
Biological sciences	4106	3040	74.0	2646	2073	277	168	119	9	246	148
Social sciences	3117	1896	60.8	1409	134	914	91	264	6	332	155
Psychology	3209	2002	62.4	1785	389	489	313	592	2	40	177
Total, engineering(2)	4536	2661	58.7	2052	424	492	910	220	6	424	185
Chemical	624	426	68.3	354	77	30	230	16	1	44	28
Civil	498	293	58.8	188	28	67	60	30	3	77	28
Electrical/electronics ...	993	568	57.2	440	65	127	205	43	-	87	41
Materials science	257	164	63.8	131	48	9	62	11	1	25	8
Mechanical	757	389	51.4	298	67	70	125	35	1	66	25
Total, non-sci/eng(3)	12803	8556	66.8	7230	281	4294	440	2190	25	581	745
Total, all fields	34319	22590	65.8	18747	4945	7279	2826	3639	58	2171	1672
U.S. CITIZENS											
Total, science/engineering ...	13158	9969	75.8	9070	3357	2388	1933	1372	20	351	548
Total, sciences	11305	8615	76.2	7833	3225	2072	1344	1174	18	295	487
Physical sciences...........	1965	1603	81.6	1471	726	124	540	76	5	80	52
Physics/astronomy	673	505	75.0	456	264	46	97	47	2	36	13
Chemistry	1292	1098	85.0	1015	462	78	443	29	3	44	39
Earth, atmos, & marine sci .	527	389	73.8	340	120	71	78	71	-	37	12
Mathematics	393	289	73.5	271	51	170	31	18	1	7	11
Computer/info sciences	337	257	76.3	236	18	138	62	18	-	7	14
Agric & biolog sci	3706	2900	78.3	2635	1844	363	249	174	5	118	147
Agricultural sciences	606	423	69.8	374	109	114	92	58	1	19	30
Biological sciences	3100	2477	79.9	2261	1735	249	157	116	4	99	117
Social sciences	1777	1269	71.4	1152	98	742	78	229	5	32	85
Psychology	2600	1908	73.4	1728	368	464	306	588	2	14	166
Total, engineering(2)	1853	1354	73.1	1237	132	316	589	198	2	56	61
Chemical	351	277	78.9	254	30	22	186	15	1	13	10
Civil	165	120	72.7	112	4	50	33	24	1	4	4
Electrical/electronics ...	390	275	70.5	248	25	77	111	35	-	13	14
Materials science	118	88	74.6	78	15	6	46	11	-	6	4
Mechanical	258	182	70.5	167	13	48	73	33	-	8	7
Total, non-sci/eng(3)	10014	7454	74.4	6757	235	3934	406	2162	20	95	602
Total, all fields	23172	17423	75.2	15827	3592	6322	2339	3534	40	446	1150
NON-U.S. CITIZENS, PERMANENT RESIDENTS											
Total, science/engineering ...	1106	655	59.2	521	201	144	150	24	2	78	56
Total, sciences	745	468	62.8	362	174	116	54	18	-	65	41
Physical sciences...........	146	97	66.4	82	59	6	17	-	-	8	7
Physics/astronomy	62	42	67.7	35	29	2	4	-	-	5	2
Chemistry	84	55	65.5	47	30	4	13	-	-	3	5
Earth, atmos, & marine sci .	30	17	56.7	14	6	2	5	1	-	2	1
Mathematics	35	23	65.7	17	3	14	-	-	-	3	3
Computer/info sciences	57	35	61.4	30	-	17	12	1	-	2	3
Agric & biolog sci	222	150	67.6	118	93	15	9	1	-	24	8
Agricultural sciences	45	27	60.0	13	9	1	3	-	-	11	3
Biological sciences	177	123	69.5	105	84	14	6	1	-	13	5
Social sciences	203	117	57.6	75	7	52	4	12	-	26	16
Psychology	52	29	55.8	26	6	10	7	3	-	-	3
Total, engineering(2)	361	187	51.8	159	27	28	96	6	2	13	15
Chemical	55	30	54.5	26	5	5	15	1	-	2	2
Civil	54	30	55.6	25	3	7	10	3	2	3	2
Electrical/electronics ...	83	46	55.4	39	7	4	27	1	-	2	5
Materials science	10	3	30.0	3	1	-	2	-	-	-	-
Mechanical	65	28	43.1	22	3	2	17	-	-	2	4
Total, non-sci/eng(3)	499	282	56.5	203	11	158	14	18	2	42	37
Total, all fields	1605	937	58.4	724	212	302	164	42	4	120	93
NON-U.S. CITIZENS, TEMPORARY RESIDENTS											
Total, science/engineering ...	5333	3391	63.6	1918	1102	451	301	53	11	1155	318
Total, sciences	3409	2276	66.8	1265	838	303	78	37	9	800	211
Physical sciences...........	888	614	69.1	461	409	17	30	4	1	94	59
Physics/astronomy	427	293	68.6	210	183	10	12	4	1	52	31
Chemistry	461	321	69.6	251	226	7	18	-	-	42	28
Earth, atmos, & marine sci .	121	78	64.5	35	25	5	3	2	-	35	8
Mathematics	343	223	65.0	135	52	75	4	2	2	64	24
Computer/info sciences	179	121	67.6	81	4	56	20	1	-	28	12
Agric & biolog sci	954	670	70.2	342	304	17	12	4	5	281	47
Agricultural sciences	355	233	65.6	63	51	3	7	2	-	148	22
Biological sciences	599	437	73.0	279	253	14	5	2	5	133	25
Social sciences	821	507	61.8	181	29	119	9	23	1	272	54
Psychology	103	63	61.2	30	15	14	-	1	-	26	7
Total, engineering(2)	1924	1115	58.0	653	264	148	223	16	2	355	107
Chemical	188	118	62.8	73	41	3	29	-	-	29	16
Civil	248	143	57.7	51	21	10	17	3	-	70	22
Electrical/electronics ...	422	245	58.1	153	33	46	67	7	-	72	20
Materials science	104	72	69.2	49	32	3	13	-	1	19	4
Mechanical	355	178	50.1	108	51	20	34	2	1	56	14
Total, non-sci/eng(3)	1257	804	64.0	262	35	197	20	7	3	443	99
Total, all fields	6590	4195	63.7	2180	1137	648	321	60	14	1598	417

(1) Total includes doctorates of unknown citizenship.

(2) Subtotal includes engineering fields not separately shown.

(3) Non-science/engineering doctorates include those whose field of specialization is unclassified.

SOURCE: Survey of Earned Doctorates

NATIONAL SCIENCE FOUNDATION
WASHINGTON, D.C. 20550

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